Price 75 Cents*

1962

RCA

POWER

TUBES

RADIO CORPORATION OF AMERICA
ELECTRON TUBE DIVISION
HARRISON, N. J.

*Optional List Price

Form No. PG-101E

Leader in tube design, development, and manufacture, RCA brings over three decades of tube know-how to bear on your power-tube requirements.

RCA's most recent contribution to power-tube technology is the **CERMOLOX** "family" developed expressly for critical industrial and demanding military applications. **CERMOLOX** design is adaptable to sizes ranging from watts to megawatts, and to 3000 Mc, and higher, in frequency.

CERMOLOX is but one of many products of the modern RCA Lancaster design and production facility. Of the work area totaling about 1,000,000 square feet, nearly 300,000 square feet of the plant are devoted to power-tube operations.

Here, power tubes are manufactured under the most stringent processing conditions. Cleanliness, air filtration, and humidity control are important tools in a manufacturing environment that actively incorporates product design, quality control and applications engineering into a closely knit team.

At the forefront of electron tube application and technology, the Market Planning and Engineering activities work at anticipating the needs of equipment designers five, and more, years ahead. You are invited to review your power tube requirements with our Marketing and Field Sales Representatives.

Industrial Tube Products, Lancaster, Pennsylvania — industrial-tube facility of the RCA Electron Tube Division

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QUICK-SELECTION CHART
CW HIGH-VACUUM POWER TUBES

CHECK THIS CHART FIRST—inside of the fold-out front cover—for preliminary selection on basis of frequency and power output for CW applications (for RF-pulse applications, see chart on page 7).

The larger lettered tube-type designation is either the most popular or the most economical for operation in its shaded area; the other type designations have essentially the same power-output and frequency characteristics as the former, but may differ in heater voltage, cooling requirements, degree of ruggedness, or other respects.

The power-output values shown on the chart are typical values which can be achieved by operation within the maximum ratings for the tube type, and in circuits having reasonably high efficiency, but are not guaranteed values. In most cases a tube type indicated in a given power-frequency area can be expected to perform as well or better in any area below or to the left of the one in which it is listed. However, when the desired operating point approaches the lower power level of an area, consideration should be given to parallel or push-pull operation of tubes in lower adjacent area.

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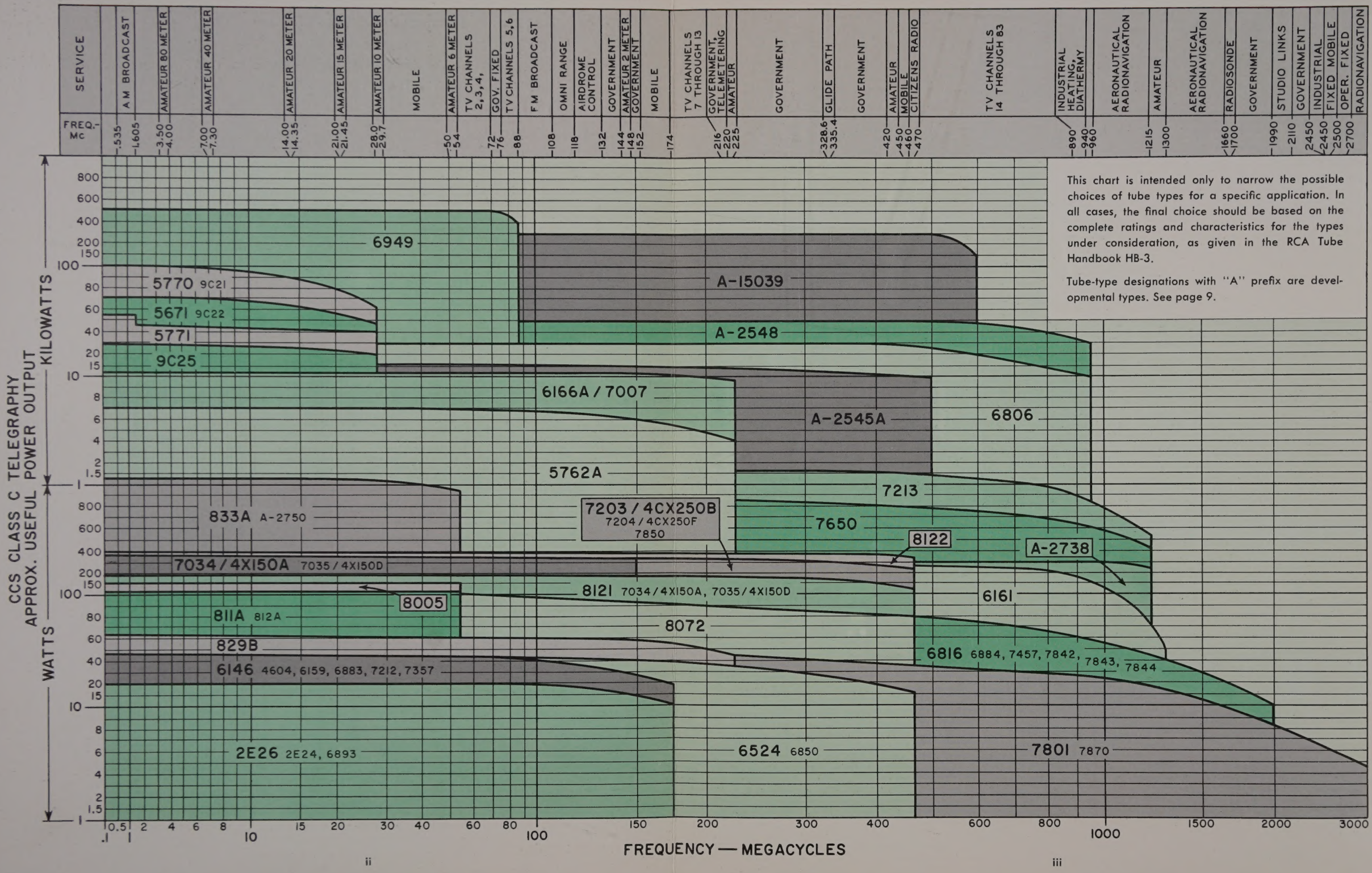
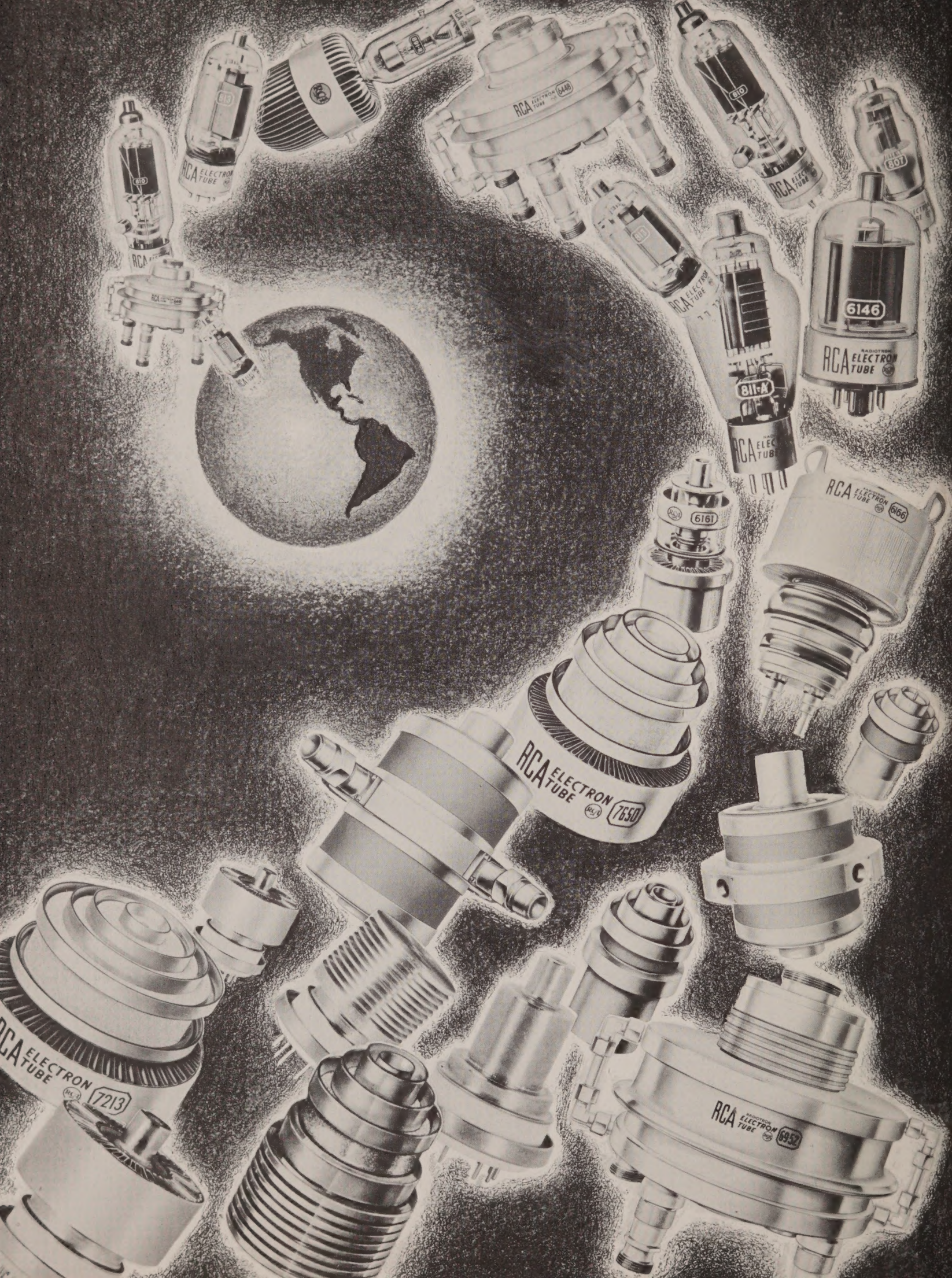
Marca(s) Registrada(s)

RCA CW POWER TUBE QUICK-SELECTION CHART



This chart is intended only to narrow the possible choices of tube types for a specific application. In all cases, the final choice should be based on the complete ratings and characteristics for the types under consideration, as given in the RCA Tube Handbook HB-3.

Tube-type designations with "A" prefix are developmental types. See page 9.


RCA ELECTRON TUBE
6146
RCA RADIOTRON ELECTRON TUBE
811-A
RCA ELECTRON TUBE
6161
RCA ELECTRON TUBE
7650
RCA ELECTRON TUBE
7213
RCA RADIOTRON ELECTRON TUBE
6952
RCA RADIOTRON ELECTRON TUBE
6166

INTRODUCTION

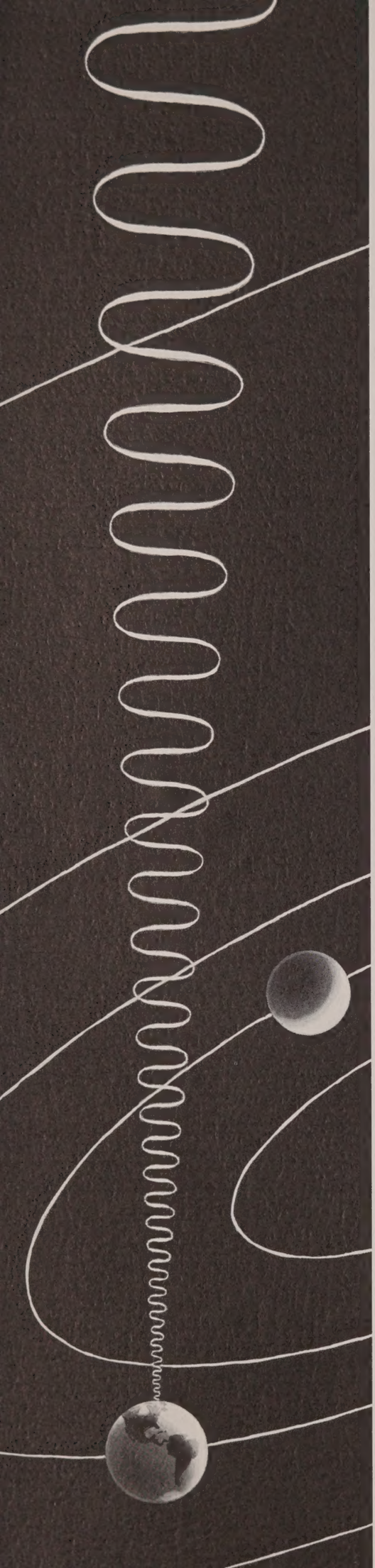
This new RCA Power Tube Catalog provides concise technical data on tubes in our power-tube line, quick-selection charts, and information that relates the technical breakthrough from the contemporary to newer concepts in power tubes.

Selected **commercial** and **developmental** tube types for consideration in the design of new equipment are highlighted in this catalog. Furthermore, quick-selection charts—grouped by cw and pulse service—are included to assist you in choosing the proper tube for a particular application.

RCA is meeting the demands of space-age electronics with new power tubes having **high power, higher frequency capability, greater degree of ruggedness,** and **more compact size.** Informative and concise discussions which point out how these features may help you will be found throughout the catalog.

Rounding out this new catalog is a tabulated data section giving condensed information on over 200 types of Power Tubes, Rectifier Tubes, Thryatrons, Ignitrons, and Special Purpose Tubes.

For complete technical data on RCA Commercial Tube Types, write RCA Commercial Engineering, Harrison, N. J. For the latest technical information on RCA Developmental Types, write Marketing Manager, Industrial Tube Products, RCA, Lancaster, Pa. When requesting such information, please specify the tube type in which you are interested. For Sales Information see page 39.



NEW FRONTIERS

As a partner in industry, RCA is making many contributions to technical progress in electronics thereby helping other industries keep pace with the electronic-space age. At the frontier of high-vacuum power tubes, RCA is at the forefront meeting such challenges as—higher frequency—higher power—greater degree of ruggedness—more compact size—more reliable operation. Improvements to meet these challenges include:

- better electrode structures,
- high-temperature envelope and sealing materials,
- new processing techniques,
- more efficient cathode materials,
- new cooling techniques.

The use of high-alumina ceramic plays a major role in the improvement of each area of power-tube design—electrical, mechanical, and thermal—

- by providing a better rf "window" and reducing rf losses within the tube,
- by making a stronger envelope and permitting closer tolerances,
- by permitting higher processing and operating tube temperatures.

The many advantages of ceramic were realized only after RCA developed the compression-seal technique for super power tubes and the metalized-ceramic process for regular power tubes.

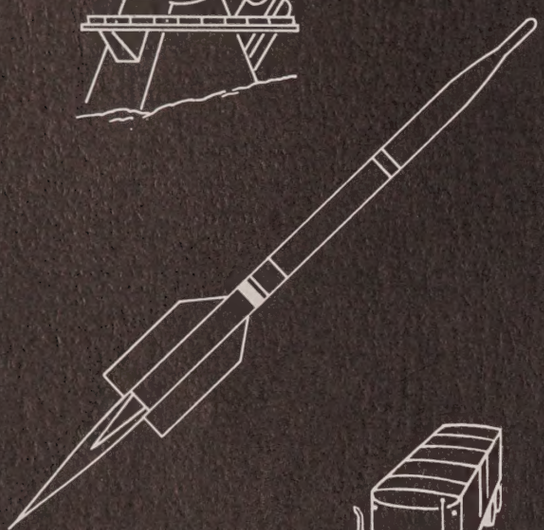
RCA developed a one-piece cylindrical electrode-terminal fabrication for rigid electrode structures in regular power tubes, and to reduce the number of welds for greater rigidity and higher electrical and thermal conductivity. This construction lends itself to another RCA development—precision alignment of multiple grids. Actually the "wires" of both grids are formed in the "tetrode" type simultaneously and with perfect alignment by an electrical "broaching" process. Tubes processed by this method and which incorporate ceramic-metal construction are designated CERMOLOX.

Another new structure for regular power tubes is the tripod construction in which the electrode is brazed directly to the rigid base leads for a sturdy, compact, and economical power tube. This type also lends itself to the use of precision-aligned grids.

Two major advances have been made in cathodes for regular power tubes —the matrix-oxide cathode, providing a vast reservoir of emissive material for long life and reliability; and the mesh thoriated-tungsten filamentary cathode, which provides more emission with much less overall length, tends to give a unipotential surface, and is more rugged than conventional filaments.

Power-handling capability at high frequencies is extended in grid-controlled tubes by the double-ended configuration which appears in such super-power tubes as the RCA-7835. This arrangement permits placement of the active tube electrodes at the electrical center of a half-wavelength portion of a resonant cavity, and allows operation at more than double the frequency than is possible with single-ended tubes of comparable power capabilities.

These are a few of the more dramatic advances in the evolution of the high-vacuum power tube at RCA. This background of ingenuity, resourcefulness, initiative, and precision facilities has made possible many of the new tubes described in this catalog.



CHECK THIS CHART FIRST for preliminary selection on basis of frequency and peak power output for RF-pulse applications.

The peak-power-output values shown on the chart are typical values which can be achieved by operation within the maximum ratings for the tube type, and in circuits having reasonably high efficiency, but are not guaranteed values. In most cases a tube type indicated in a given power-frequency area can be expected to perform as well or better in any area below or to the left of the one in which it is listed.

APPLICATIONS OF RCA HIGH-VACUUM POWER TUBES

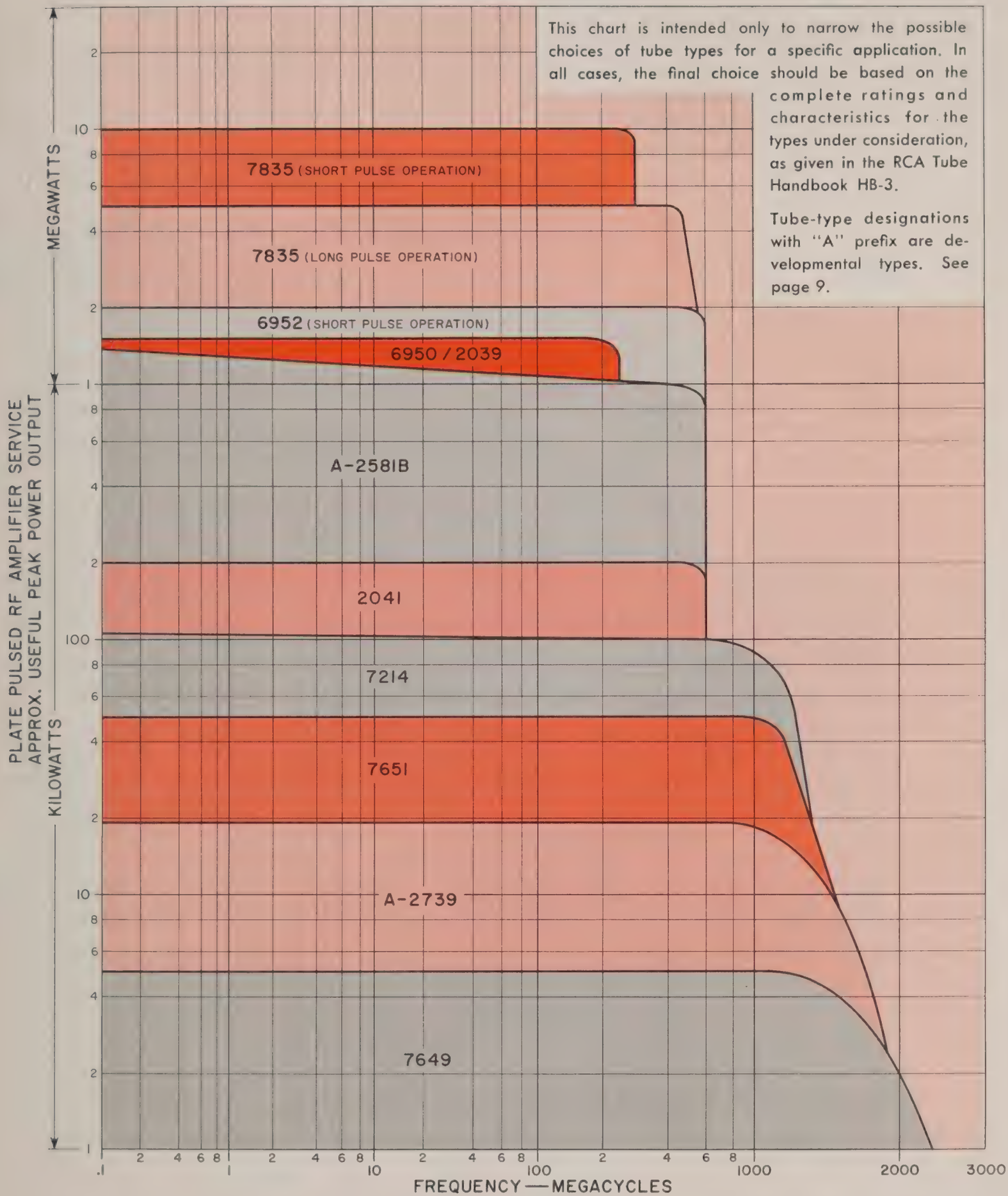
In general, most high-vacuum power tubes amplify electrical signals—audio-frequency to super-high-frequency signals, continuous-wave to pulse signals. Special applications include service as oscillator, frequency multiplier, hard-tube modulator, and voltage regulator. **The flexibility of the high-vacuum power tube encourages its use in hard-tube-modulator and voltage-regulator service over their gas-filled counterparts.**

The hard-tube-modulator tube provides the following advantages in switching and triggering circuits.

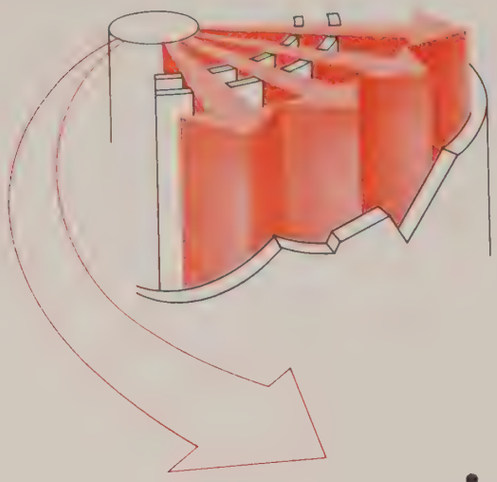
- Pulse-shape control
- Wide range of matching impedance
- Ability to terminate the pulse
- Wide range of operating conditions
- No jitter

Each RCA power tube is rated to fill the needs for which it was originally intended. Additional ratings may be tailored to meet your new-equipment requirements. Contact the RCA Electron Tube Sales office nearest you (see page 39) to talk over your design problems.

RCA RF-PULSE POWER TUBE QUICK-SELECTION CHART


This chart is intended only to narrow the possible choices of tube types for a specific application. In all cases, the final choice should be based on the complete ratings and characteristics for the types under consideration, as given in the RCA Tube Handbook HB-3.
Tube-type designations with "A" prefix are developmental types. See page 9.
PLATE PULSED RF AMPLIFIER SERVICE
APPROX. USEFUL PEAK POWER OUTPUT
MEGAWATTS
KILOWATTS
7835 (SHORT PULSE OPERATION)
7835 (LONG PULSE OPERATION)
6952 (SHORT PULSE OPERATION)
6950 / 2039
A-2581B
2041
7214
7651
A-2739
7649
FREQUENCY — MEGACYCLES

THE INSIDE STORY OF Cermolox

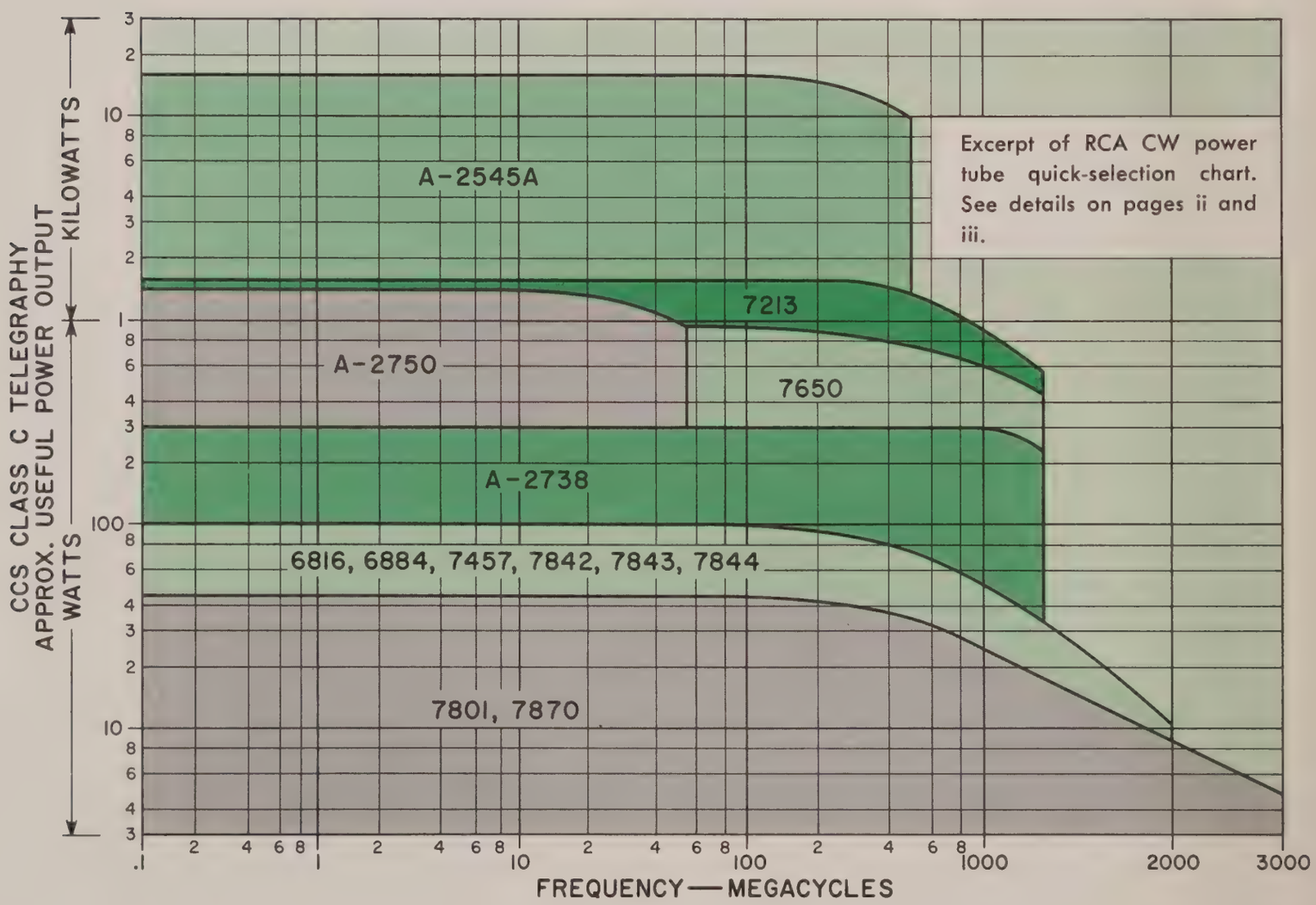


RCA'S NEW CONCEPT OF UHF BEAM POWER TUBE TECHNOLOGY

This new family of beam power tubes with precision-aligned grids, unitized electrode-and-terminal in coaxial configuration, and ceramic-metal construction offer the following advantages:

- High power output
- High gain
- High power sensitivity
- Low driver power
- Minimum screen current
- Negligible grid emission
- Exceptional strength
- Small in size
- Compact
- High-temperature operation

RCA CW CERMOLOX QUICK-SELECTION TUBE CHART



Excerpt of RCA CW power tube quick-selection chart. See details on pages ii and iii.

RCA POWER TUBES FOR NEW-EQUIPMENT DESIGN

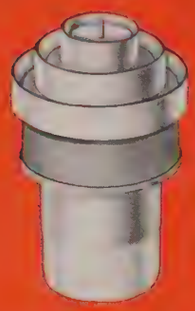
On the following pages are selected high-vacuum power tubes which you should consider first in your design of new equipment. We call your attention to some of the experience-proven types, introduce you to recently-announced types, and whet your appetite on some promising developmental types.

Arranged in order of ascending power-output capabilities, each tube type's general physical arrangement, outstanding features, and power and frequency capabilities are presented to assist you in the selection of a high-vacuum power tube to meet your requirements. Tube types with similar basic structures and electrical characteristics are grouped together; differences such as heater voltage, cooling method, and degree of ruggedization are noted.

Additional concise information on the commercial tube types appearing in this section as well as information on other types in the complete RCA commercial power-tube line may be found in the tabulated-data section starting on page 25.

Type numbers with prefix "A" are developmental types. Each of these numbers identifies a particular laboratory design but the number and the identifying data are subject to change. No obligations are assumed as to future manufacture unless otherwise arranged.

Information furnished by RCA is believed to be accurate and reliable. However, no responsibility is assumed by RCA for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of RCA.



RCA-7801

BEAM POWER TUBE
12.6-VOLT, 0.5-ampere Heater

RCA-7870

BEAM POWER TUBE
6.3-VOLT, 1.0-ampere Heater

3.2 Watts CW Power Output at 3000 Mc.

15 Watts CW Power Output at 1200 Mc.

27 Watts CW Power Output at 400 Mc.

- *CERMOLOX*
- *Conduction Cooled*
- *Very Small Size*
- *52.5 Maximum Watts Input*
- *AF Amplifier, RF Amplifier & Osc., Regulator Service*

RCA-6816

BEAM POWER TUBE
6.3-VOLT, 2.1-ampere Heater

RCA-6884

BEAM POWER TUBE
26.5-VOLT, 0.52-ampere Heater

RCA-7457

BEAM POWER TUBE
6.3-VOLT, 3.2-ampere Heater

RCA-7844

BEAM POWER TUBE
6.3-VOLT, 2.1-ampere Heater

RCA-7843

BEAM POWER TUBE
26.5-VOLT, 0.52-ampere Heater

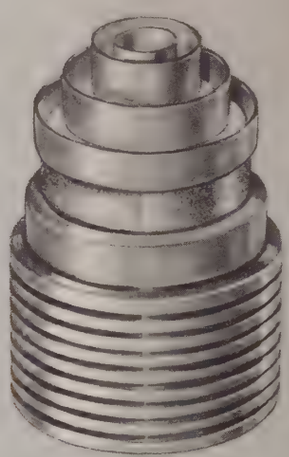
RCA-7842

BEAM POWER TUBE
6.3-VOLT, 3.2-ampere Heater

40 Watts CW Power Output at 1215 Mc.

80 Watts CW Power Output at 400 Mc.

- *CERMOLOX*
- *Forced-Air-Cooled Types: 6816, 6884, & 7457*
- *Conduction-cooled Types: 7844, 7843, & 7842*
- *Ruggedized Types: 7457 & 7842*
- *Small Size*
- *180 Maximum Watts Input*
- *AF Amplifier, RF Amplifier & Osc., Frequency Multiplier, & Regulator Service*



RCA-6524

TWIN BEAM POWER TUBE

6.3-VOLT, 1.25-ampere Heater

RCA-6850

TWIN BEAM POWER TUBE

12.6-VOLT, 0.625-ampere Heater

---

20 Watts ICAS CW Power Output at 462 Mc.

56 Watts ICAS CW Power Output at 100 Mc.

- *Sturdy Construction*
- *Small Size*
- *25 Watts Maximum ICAS Plate Dissipation*
- *85 Watts Maximum ICAS Plate Input*
- *AF Amplifier & Mod., RF Amplifier & Osc., & Frequency Tripler Service*

- *Ruggedized Types: 7212 & 7357*
- *Quick-Heating Type: 4604*
- *Large-Wafer Octal Base Types: 6146 & 6159*
- *Small-Wafer Octal Base Types: 4604, 6883, 7212 & 7357*
- *Small Size*
- *Sturdy Construction*
- *25 Watts Maximum ICAS Plate Dissipation*
- *AF Amplifier & Mod., RF Amplifier & Osc. Service*

RCA-6146

BEAM POWER TUBE

6.3-VOLT, 1.25-ampere Heater

RCA-6159

BEAM POWER TUBE

26.5-VOLT, 0.3-ampere Heater

RCA-6883

BEAM POWER TUBE

12.6-VOLT, 0.625-ampere Heater

RCA-7212

BEAM POWER TUBE

6.3-VOLT, 1.25-ampere Heater

RCA-7357

BEAM POWER TUBE

26.5-VOLT, 0.3-ampere Heater

---

35 Watts ICAS CW Power Output at 175 Mc.

70 Watts ICAS CW Power Output at 60 Mc.

RCA-4604

BEAM POWER TUBE

6.3-VOLT, 0.65-ampere Filament

---

30 Watts ICAS CW Power Output at 175 Mc.

- *Conduction-Cooled Type: 8072*
- *Forced-Air-Cooled Types: 8121 & 8122*
- *Compact*
- *Very Small Size*
- *Precision-Aligned Grids*
- *400-Watt Maximum Plate Dissipation Type: 8122*
- *150-Watt Maximum Plate Dissipation Type: 8121*
- *RF Amplifier & Osc. & Linear RF Amplifier Service in Mobile Applications*

RCA-8072

BEAM POWER TUBE

12- TO 15-VOLT, 1.3-ampere Heater

At Plate Volts = 700:

85 Watts CW Power Output at 470 Mc.

105 Watts CW Power Output at 175 Mc.

110 Watts CW Power Output at 50 Mc.

RCA-8121

BEAM POWER TUBE

13.5-VOLT, 1.3-ampere Heater

At Plate Volts = 1500:

170 Watts PEP Power Output at 30 Mc.

235 Watts CW Power Output at 470 Mc.

RCA-8122

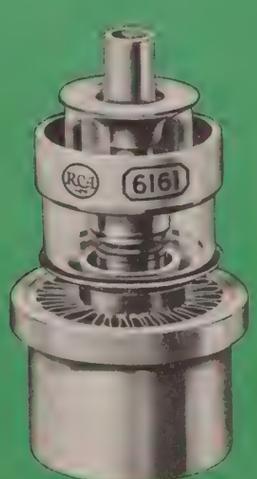
BEAM POWER TUBE

13.5-VOLT, 1.3-ampere Heater

At Plate Volts = 2000:

380 Watts PEP Power Output at 30 Mc.

300 Watts CW Power Output at 470 Mc.



RCA-6161

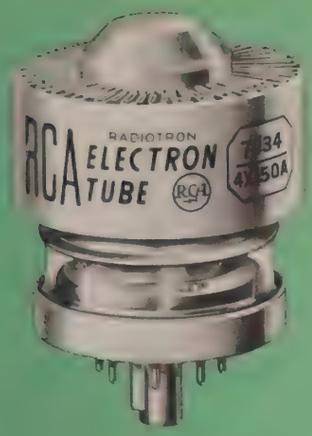
UHF POWER TRIODE

6.3-VOLT, 3.4-ampere Heater

180 Watts CW Power Output at 900 Mc.

270 Watts CW Power Output at 600 Mc.

- *Forced-Air Cooled*
- *Compact*
- *Small Size*
- *250 Watts Maximum Plate Dissipation*
- *RF Amplifier & Osc., Television, and Frequency Multiplier Service*



RCA-7034/4X150A

BEAM POWER TUBE
6-VOLT, 2.6-ampere Heater

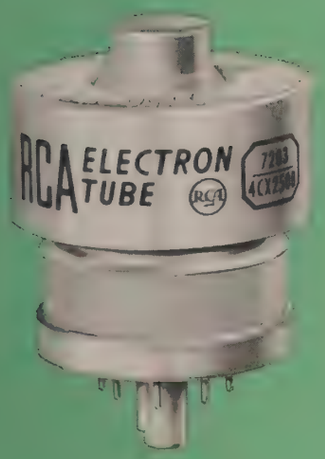
RCA-7035/4X150D

BEAM POWER TUBE
26.5-VOLT, 0.58-ampere Heater

---

140 Watts CW Power Output at 500 Mc.

370 Watts CW Power Output at 150 Mc.



RCA-7203/4CX250B

BEAM POWER TUBE
6-VOLT, 2.6-ampere Heater

RCA-7204/4CX250F

BEAM POWER TUBE
26.5-VOLT, 0.58-ampere Heater

---

250 Watts CW Power Output at 500 Mc.

400 Watts CW Power Output at 175 Mc.

RCA-7580

BEAM POWER TUBE
6-VOLT, 2.6-ampere Heater

---

360 Watts PEP Power Output at 500 Mc.

400 Watts PEP Power Output at 30 Mc.

- *Forced-Air Cooled*
- *Glass-Metal Types: 7034/4X150A & 7035/4X150D*
- *Ceramic-Metal Types: 7203/4CX250B, 7204/4CX250F, & 7580*
- *Very Small Size*
- *Compact*
- *250 Watts Maximum Plate Dissipation*
- *Types 7034/4X150A, 7035/4X150D, 7203/4CX250B & 7204/4CX250F for AF Amplifier & Mod., RF Amplifier & Osc., Television, and Linear RF Amplifier Service*
- *Type 7580 for Linear RF Amplifier Service*

- *CERMOLOX*
- *Forced-Air Cooled*
- *Ruggedized*
- *Small Size*
- *300 Watts Maximum Plate Dissipation*
- *655 Watts Maximum Plate Input*
- *AF Amplifier & Mod., RF Amplifier & Osc., Linear RF Amplifier, and Frequency Multiplier Service*

RCA Dev. No. A-2738

BEAM POWER TUBE
6.3-VOLT, 3-ampere Heater

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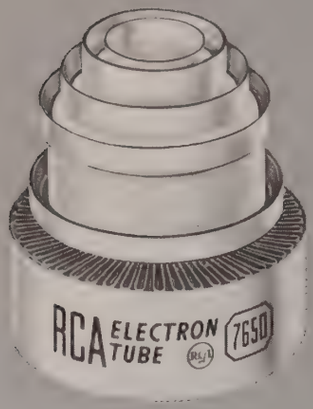
100 Watts CW Power Output at 1215 Mc.

300 Watts CW Power Output at 400 Mc.



RCA-7650

BEAM POWER TUBE

6.3-VOLT, 7.5-ampere Heater

375 Watts CW Power Output at 1215 Mc.

800 Watts CW Power Output at 400 Mc.

- *CERMOLOX*
- *Forced-Air Cooled*
- *Ruggedized*
- *Small Size*
- *600 Watts Maximum Plate Dissipation*
- *AF Amplifier & Mod., RF Amplifier & Osc., and Linear RF Amplifier Service*

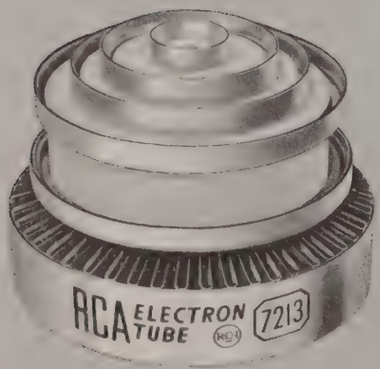
- *CERMOLOX*
- *Forced-Air Cooled*
- *Ruggedized*
- *Small Size*
- *800 Watts Maximum Plate Dissipation*
- *Linear RF Amplifier Service*

RCA Dev. No. A-2750

BEAM POWER TUBE

6.3-VOLT, 7.5-ampere Heater

1000 Watts CW Power Output at 30 Mc.



RCA-7213

BEAM POWER TUBE

5.5-VOLT, 17.3-ampere Heater

1350 Watts CW Power Output at 600 Mc.

- *CERMOLOX*
- *Forced-Air Cooled*
- *Small Size*
- *1500 Watts Maximum Plate Dissipation*
- *RF Amplifier & Osc. and Linear RF Amplifier Service*

- *Forced-Air Cooled*
- *Thoriated-Tungsten Filament*
- *High Perveance*
- *Stable RF Performance*
- *4000 Watts Maximum Plate Dissipation*
- *AF Amplifier & Mod., RF Amplifier & Osc., and Television Service*

RCA-5762A

POWER TRIODE

12.6-VOLT, 29-ampere Filament

6350 Watts TV Power Output at 216 Mc.

4000 Watts CW Power Output at 220 Mc.

5500 Watts CW Power Output at 110 Mc.

7000 Watts CW Power Output at 30 Mc.

RCA Dev. No. A-2545A

BEAM POWER TUBE

8-VOLT, 88-ampere Filament

10,000 Watts CW Power Output at 500 Mc.

- *CERMOLOX*
- *Forced-Air Cooled*
- *Thoriated-Tungsten Mesh Filament*
- *10,000 Watts Maximum Plate Dissipation*
- *RF Amplifier & Osc. and Linear RF Amplifier Service*

RCA-6166A/7007

BEAM POWER TUBE

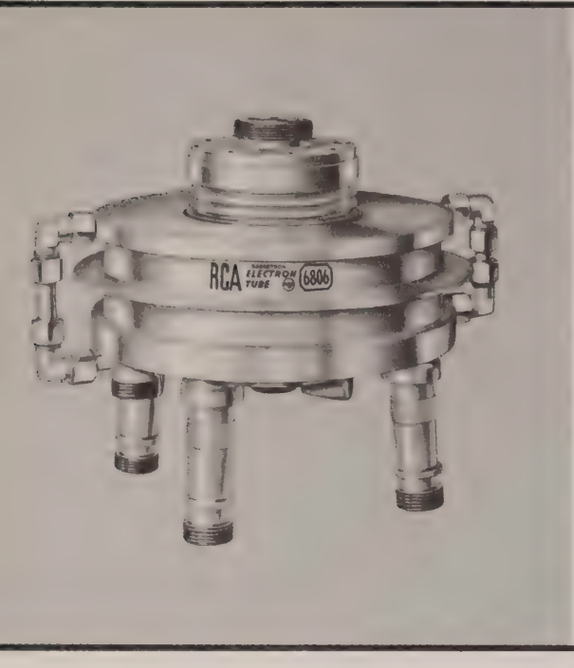
5-VOLT, 174-ampere Filament

14,000 Watts TV Power Output at 216 Mc.

10,000 Watts CW Power Output at 216 Mc.

12,000 Watts CW Power Output at 60 Mc.

- *Forced-Air Cooled*
- *Ceramic-Metal Construction*
- *Thoriated-Tungsten Filament*
- *12,000 Watts Maximum Plate Dissipation*
- *RF Amplifier & Osc., Television, and Linear RF Amplifier Service*



RCA-6806

SUPER-POWER BEAM POWER TUBE

2-SECTION FILAMENT, 1.35-volts/1000-amperes per section

19,000 Watts TV Power Output at 800 Mc.

28,000 Watts TV Power Output at 550 Mc.

13,000 Watts CW Power Output at 900 Mc.

25,000 Watts CW Power Output at 400 Mc.

- *Water Cooled*
- *Ceramic-Metal Construction*
- *Thoriated-Tungsten Filament*
- *Power Gain — 17 db*
- *36,000 Watts Maximum Plate Dissipation*
- *RF Amplifier, Television, and Linear RF Amplifier Service*

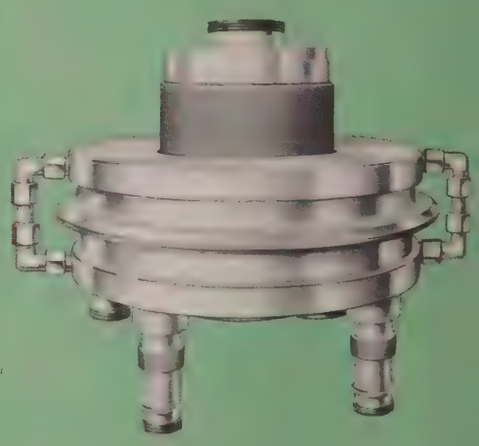
- *Water Cooled*
- *Ceramic-Metal Construction*
- *Thoriated-Tungsten Filament*
- *55,000 Watts Maximum Plate Dissipation*
- *RF Amplifier Service*

RCA Dev. No. A-2548

SUPER-POWER BEAM POWER TUBE

2-SECTION FILAMENT, 1.35-volts/1000-amperes per section

50,000 Watts CW Power Output at 425 Mc.



RCA Dev. No. A-15039

SUPER-POWER TRIODE

4-VOLT, 6800- to 7200-ampere Filament

300,000 Watts CW Power Output at 440 Mc.

- *Water Cooled*
- *Symmetrical Double-Ended Construction*
- *Thoriated-Tungsten Filament*
- *High Efficiency*
- *400,000 Watts Maximum Plate Dissipation*
- *RF Amplifier Service*

- *Water Cooled*
- *Thoriated-Tungsten Filament*
- *Power Gain — 24 db*
- *For use at Maximum Ratings Up to 75 Mc.*
- *400,000 Watts Maximum Plate Dissipation*
- *RF Amplifier and Linear RF Amplifier Service*

RCA-6949

SUPER-POWER SHIELDED-GRID BEAM TRIODE

7.3- TO 7.8-VOLT, 1120- to 1160-ampere Filament

600,000 Watts PEP Power Output at 10 Mc.

500,000 Watts CW Power Output at 425 Kc.

RF-PULSE POWER

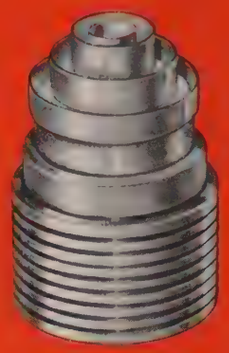
- *CERMOLOX*
- *Forced-Air Cooled*
- *Ruggedized*
- *9000 Watts Peak Plate Input up to 1215 Mc.*
- *115 Watts Maximum Plate Dissipation*
- *Grid-and-Screen Pulsed RF Amplifier, and Plate-and-Screen Pulsed RF Amplifier Service*

RCA-7649

BEAM POWER TUBE

6.3-VOLT, 3.2-ampere Heater

4500 Watts Peak Plate-and-Screen-Pulsed Power Output at 1215 Mc. with Pulse Width of 10 μsec. and Duty Factor of 0.01



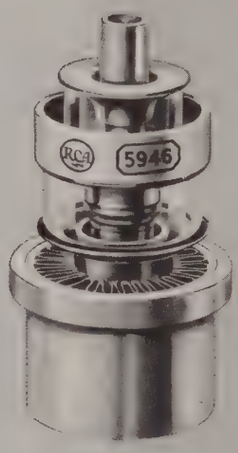
- *Forced-Air Cooled*
- *250 Watts Maximum Plate Dissipation*
- *UHF Plate-Pulsed Oscillator and Amplifier Service*

RCA-5946

POWER TRIODE

6.3-VOLT, 3.4-ampere Heater

14,000 Watts Peak Plate-Pulsed Power Output at 1250 Mc. with Pulse Width of 5 μsec. and Duty Factor of 0.01



RCA Dev. No. A-2739

BEAM POWER TUBE

6.3-VOLT, 3.2-ampere Heater

20,000 Watts Peak Plate-Pulsed Power Output at 1215 Mc. with Pulse Width of 5 μsec. and Duty Factor of 0.005

- *CERMOLOX*
- *Forced-Air Cooled*
- *Ruggedized*
- *Small Size*
- *100 Watts Maximum Plate Dissipation*
- *Pulsed RF Amplifier Service*

RCA-7651

BEAM POWER TUBE

6.3-VOLT, 7.5-ampere Heater

39,000 Watts Peak Plate-and-Screen-Pulsed Power Output at 1215 Mc. With Pulse Width of 10 μsec. and Duty Factor of 0.01

- *CERMOLOX*
- *Forced-Air Cooled*
- *Ruggedized*
- *72 Kilowatts Peak Pulse Power Input up to 1215 Mc.*
- *600 Watts Maximum Plate Dissipation*
- *Grid-Pulsed RF Amplifier, Grid-and-Screen-Pulsed RF Amplifier, and Plate-and-Screen-Pulsed RF Amplifier Service*

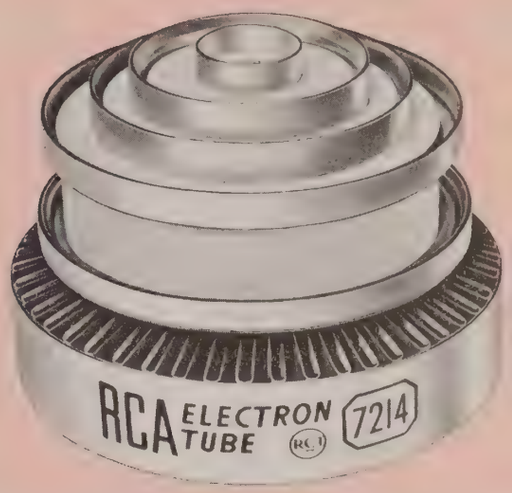
- *CERMOLOX*
- *Forced-Air Cooled*
- *180 Kilowatts Peak Pulse Power Input Up to 1215 Mc.*
- *1500 Watts Maximum Plate Dissipation*
- *Grid-Pulsed RF Amplifier and Plate-and-Screen-Pulsed RF Amplifier Service*

RCA-7214

BEAM POWER TUBE

5.5-VOLT, 17.3-ampere Heater

65,000 Watts Peak Plate-Screen-Pulsed Power Output at 1215 Mc. with Pulse Width of 10 μsec. and Duty Factor of 0.01



- *Ceramic-Metal Construction*
- *Liquid Cooled*
- *Thoriated-Tungsten Filament*
- *Power Gain — 23 db*
- *For Long Pulse Operation from 174 to 575 Mc.*
- *Up to 20,000 Watts Plate Dissipation*
- *Grid-Pulsed RF Amplifier, Grid-and-Screen-Pulsed RF Amplifier, and Plate-Pulsed RF Amplifier Service*

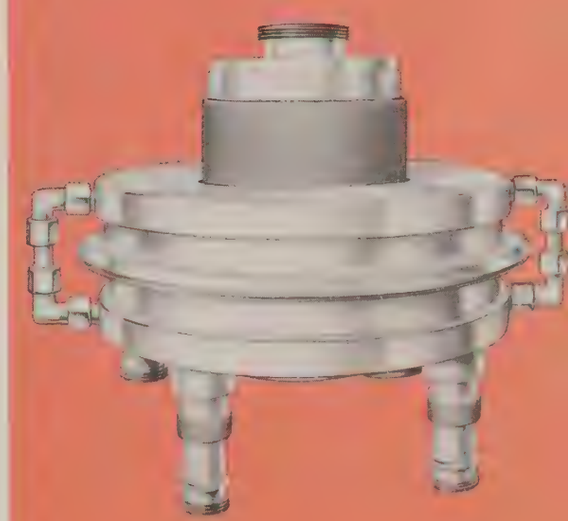
RCA-2041

SUPER-POWER BEAM POWER TUBE

2-SECTION FILAMENT, 1.35-volts/1000-amperes per section

300,000 Watts Peak Plate-Pulsed Power Output at 450 Mc. with Pulse Width of 200 μsec. and Duty Factor of 0.01

180,000 Watts Peak Plate-Pulsed Power Output at 450 Mc. with Pulse Width of 2000 μsec. and Duty Factor of 0.06



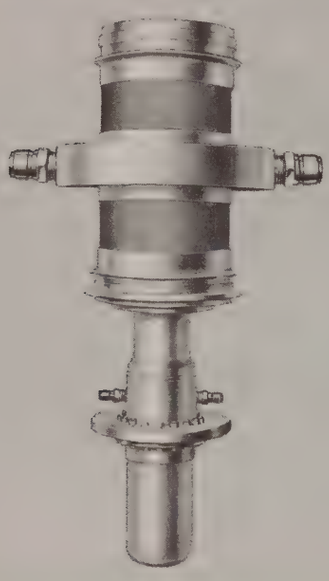
- *CERMOLOX*
- *Forced-Air Cooled*
- *Matrix-Type Cathode*
- *10,000 Watts Maximum Plate Dissipation*
- *25,000 Watts Maximum Plate Input (Average)*
- *Pulsed RF Amplifier & Oscillator Service*

RCA Dev. No. A-2581B

BEAM POWER TUBE

22-VOLT, 12.8-ampere Heater

1,000,000 Watts Peak Plate-Pulsed Power Output at 500 Mc. with Pulse Width of 5 μsec. and Duty Factor of 0.005



RCA-6950/2039

SUPER-POWER SHIELDED-GRID BEAM TRIODE

7.3- TO 7.8-VOLT, 1120- to 1160-ampere Filament

1,500,000 Watts Peak Plate-Pulsed Power Output at 200 Mc. with Pulse Width of 2000 μsec. and Duty Factor of 0.05

- *Water Cooled*
- *Symmetrical Double-Ended Construction*
- *Thoriated-Tungsten Filament*
- *Long Pulse Operation up to 200 Mc.*
- *230,000 Watts Maximum Plate Input (Average)*
- *150,000 Watts Maximum Plate Dissipation*
- *Plate-Pulsed RF Amplifier Service*

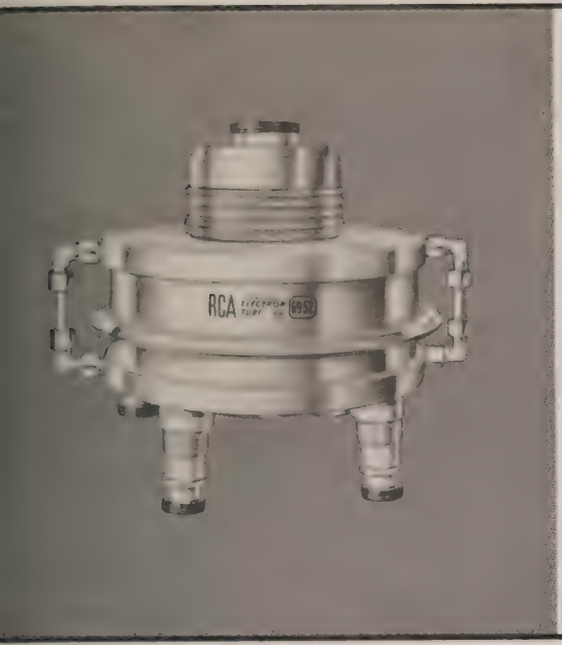
RCA-4603

SUPER-POWER SHIELDED-GRID BEAM TRIODE

7.3- TO 7.8-VOLT, 1120- to 1160-ampere Filament

1,500,000 Watts Peak Plate-Pulsed Power Output at 50 Mc. with Pulse Width of 3000 μsec. and Duty Factor of 0.09

- *Water Cooled*
- *Thoriated-Tungsten Filament*
- *Power Gain — 21 db*
- *Long Pulse Operation up to 100 Mc.*
- *360,000 Watts Maximum Plate Input (Average)*
- *150,000 Watts Maximum Plate Dissipation*
- *Grid-Pulsed RF Amplifier and Plate-Pulsed RF Amplifier Service*



RCA-6952

SUPER-POWER BEAM POWER TUBE

0.95-VOLT, 500-ampere Filament

2,000,000 Watts Peak Plate-Pulsed Power Output at 425 Mc. with Pulse Width of 13 μsec. and Duty Factor of 0.004

- *Liquid Cooled*
- *Matrix-Type Filament*
- *Power Gain — 25 db*
- *Short Pulse Operation from 174 to 600 Mc.*
- *16,000 Watts Maximum Plate Input (Average)*
- *8,000 Watts Maximum Plate Dissipation*
- *Plate-Pulsed RF Amplifier Service*

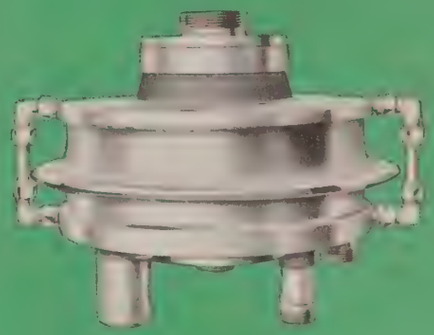
- *Liquid Cooled*
- *Matrix-Type Filament*
- *Power Gain — 16 db*
- *Short Pulse Operation from 225 to 1000 Mc.*
- *35,000 Watts Maximum Plate Input (Average)*
- *25,000 Watts Maximum Plate Dissipation*
- *Plate-Pulsed RF Amplifier Service*

RCA Dev. No. A-2590

SUPER-POWER BEAM POWER TUBE

0.85-VOLT, 585-ampere Filament

1,000,000 Watts Peak Plate-Pulsed Power Output at 940 Mc. with Pulse Width of 20 μsec. and Duty Factor of 0.006



RCA-2054

SUPER-POWER TRIODE

3.1- TO 4.5-VOLT, 6600- to 7200-ampere Filament

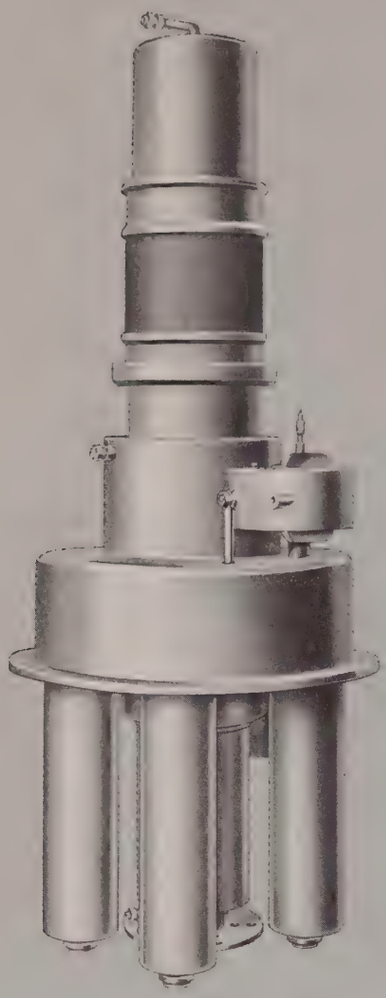
5,000,000 Watts Peak Plate-Pulsed Power Output at 440 Mc. with Pulse Width of 2000 μsec. and Duty Factor of 0.06

2,500,000 Watts Peak Plate-Pulsed Power Output at 440 Mc. with Pulse Width of 10,000 μsec. and Duty Factor of 0.06

- *Water Cooled*
- *Symmetrical Double-Ended Construction*
- *Thoriated-Tungsten Filament*
- *High Efficiency*
- *Long Pulse Operation up to 605 Mc.*
- *Plate Dissipation up to 300,000 Watts*
- *Plate-Pulsed RF Amplifier Service*

RF-PULSE POWER

1 TO 10 MEGAWATTS (PEAK)



RCA Dev. No. A-15038

SUPER-POWER TRIODE COAXITRON

2-VOLT, 2000-ampere Filament

5,000,000 Watts Peak Plate-Pulsed Power Output Throughout Pass-Band with Pulse Width of 25 μsec. and Duty Factor of 0.008

- *Integral Cavities*
- *Short Pulse Operation from 385 to 465 Mc.*
- *Matrix-Type Filament*
- *High Mu*

- *Water Cooled*
- *Symmetrical Double-Ended Construction*
- *7835: Thoriated-Tungsten Filament; Dev. No. A-15025A: Matrix-Type Filament*
- *Long or Short Pulse to 300 Mc.*
- *300,000 Watts Maximum Plate Dissipation*
- *Plate-Pulsed RF Amplifier Service*

RCA-7835

SUPER-POWER TRIODE

3.1- TO 4.2-VOLT, 6600-ampere Filament

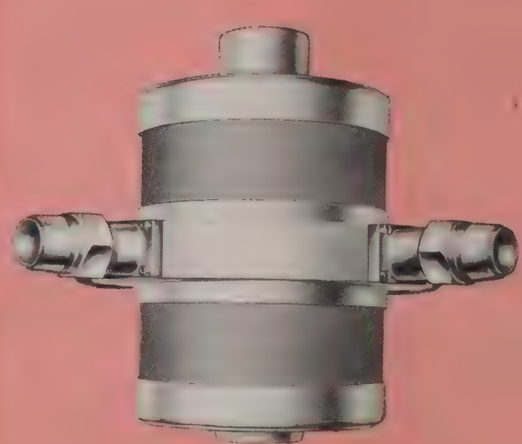
RCA Dev. No. A-15025A

SUPER-POWER TRIODE

1.4- TO 1.85-VOLT, 2000-ampere Filament

10,000,000 Watts Peak Plate-Pulsed Power Output at 250 Mc. with Pulse Width of 25 μsec. and Duty Factor of 0.006

5,000,000 Watts Peak Plate-Pulsed Power Output at 250 Mc. with Pulse Width of 2000 μsec. and Duty Factor of 0.06



DC-PULSE POWER

- *Ruggedized Type: 7358*
- *Sturdy Construction*
- *Small Size*
- *Large-Wafer Octal Base Type: 6293*
- *Small-Wafer Octal Base Type: 7358*
- *Up to 10 Watts Plate Dissipation*
- *Plate Voltage up to 3500 Volts*
- *Hard-Tube Modulator Service*

RCA-6293

BEAM POWER TUBE

6.3-VOLT, 1.25-ampere Heater

RCA-7358

BEAM POWER TUBE

6.3-VOLT, 1.25-ampere Heater

Peak Plate Current of 3 Amperes at Duty Factor of 0.003

Peak Plate Current of 2 Amperes at Duty Factor of 0.008

Peak Plate Current of 1 Ampere at Duty Factor of 0.04

SPECIAL PURPOSE

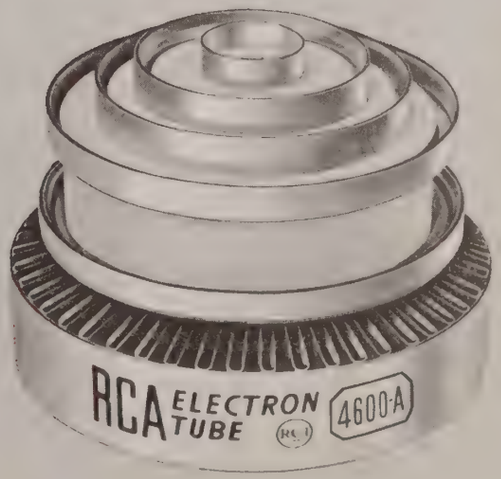
- *CERMOLOX*
- *Forced-Air Cooled*
- *Rhodium Plated*
- *Small Size*
- *1750 Watts Maximum Plate Dissipation*
- *3500 Volts Maximum Plate Voltage*
- *1 Ampere Maximum Plate Current*

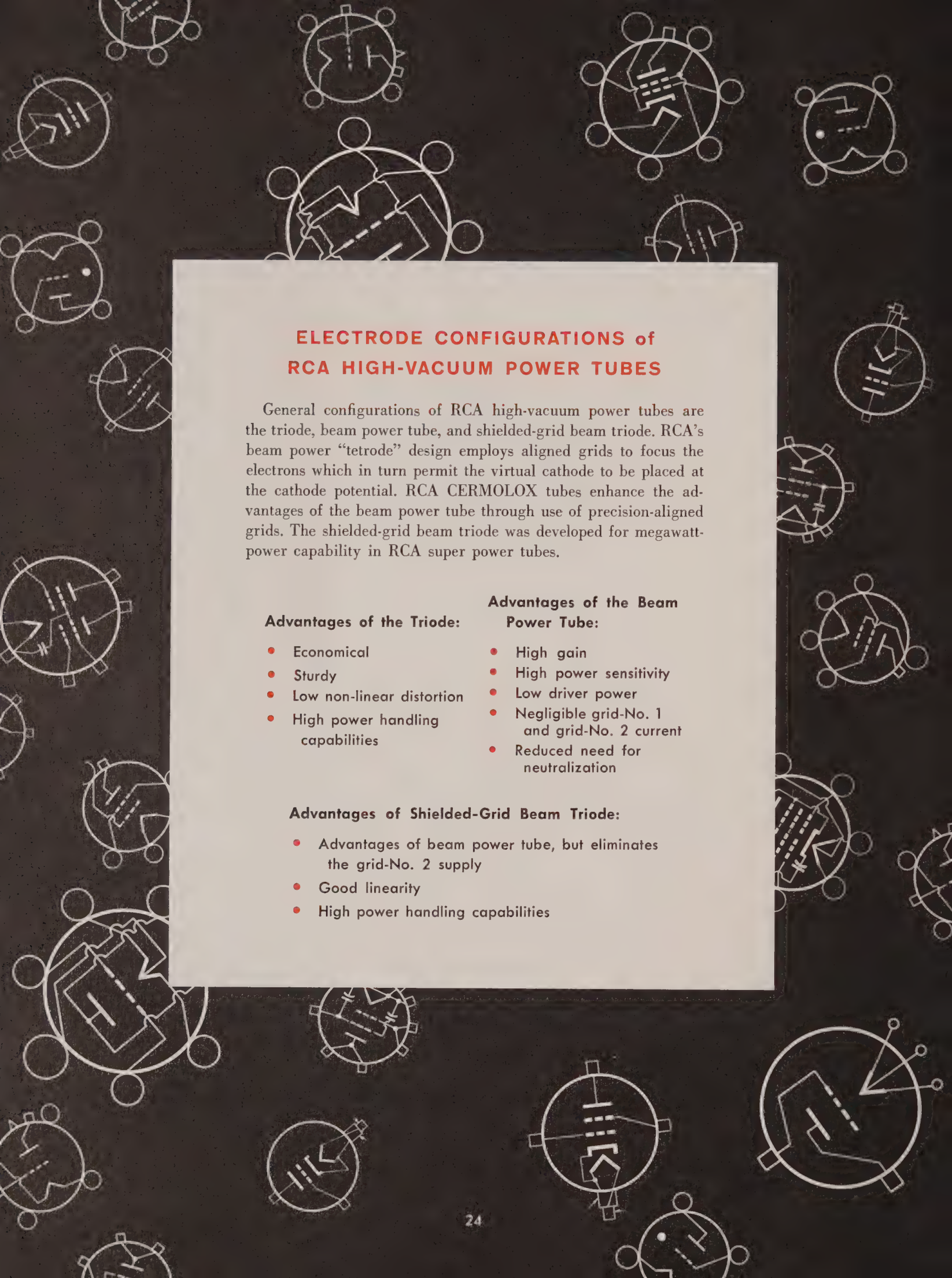
RCA-4600A

BEAM POWER TUBE

5.5-VOLT, 17.3-ampere Heater

Voltage Regulator Service





ELECTRODE CONFIGURATIONS of RCA HIGH-VACUUM POWER TUBES

General configurations of RCA high-vacuum power tubes are the triode, beam power tube, and shielded-grid beam triode. RCA's beam power "tetrode" design employs aligned grids to focus the electrons which in turn permit the virtual cathode to be placed at the cathode potential. RCA CERMOLOX tubes enhance the advantages of the beam power tube through use of precision-aligned grids. The shielded-grid beam triode was developed for megawatt-power capability in RCA super power tubes.

Advantages of the Triode:

- Economical
- Sturdy
- Low non-linear distortion
- High power handling capabilities

Advantages of the Beam Power Tube:

- High gain
- High power sensitivity
- Low driver power
- Negligible grid-No. 1 and grid-No. 2 current
- Reduced need for neutralization

Advantages of Shielded-Grid Beam Triode:

- Advantages of beam power tube, but eliminates the grid-No. 2 supply
- Good linearity
- High power handling capabilities

RCA Vacuum Power Tubes for CW Applications

RCA Type	Description	Cooling	Filament (F) or Heater		Max. Dimensions Inches		Class of Service*	Max. Frequency for Full Input Mc	Max. Plate Ratings†		Typical Operating Conditions†		
			Volts	Amp.	Length	Diam.			Volts	DC Input Watts	Frequency Mc	Approx. Driving Power Watts	Approx. Power Output Watts
2C39A	Triode	Forced-Air	6.3	1	2 3/4	1 17/64	C·M C·P C·T·A	— — —	1000 600 1000	— — —	— — 500	— — 6[a]	— — 27[b]
2C39WA	Triode	Forced-Air	For data, refer to Mil-E-1/778C (Navy) specification.										
2C40	Lighthouse Triode	Natural	6.3	0.75	2 9/16	1 5/16	C·T·O	3370	500	—	3370	—	0.075
2C40A	Lighthouse Triode	Natural	6.3	0.75	2 9/16	1.312	C·T·O	3370	500	—	3370	—	0.075
2C43	Lighthouse Triode	Natural	6.3	0.9	2 11/16	1 5/16	C·T·O	1500	500	—	350	—	9[c]
2E24	Quick-Heating Beam Power Tube	Natural	6.3F	0.65	3 21/32	1 5/16	• C·P • C·T·A	125 125	500 600	27 40	— 125	0.16 0.21	18 27
2E26	Beam Power Tube	Natural	6.3	0.8	3 21/32	1 5/16	• AB_2 • C·P • C·T·F	— 125 125	750 500 600	37.5 27 40	— — 125	0.36 0.15 0.17	54 18 27
3A4	Pentode	Natural	1.4F / 2.8	0.2 / 0.1	2 1/8	3/4	A_1 C·T·A	— 10	150[d] 150[d]	— 3[d]	— 10	— —	0.7 1.2
3A5	Twin Triode	Natural	1.4F / 2.8	0.22 / 0.11	2 1/8	3/4	C·T·A	40	135[d]	2[de]	40	0.2	2
4-65A	Beam Power Tube	Forced-Air	6F	3.5	4 3/8	2 3/8	AB_2 C·P C·T·F	— 150 150	3000 2500 3000	— — —	— — —	1.3 2.6 1.7	270 230 280
4-125A/ 4D21	Beam Power Tube	Forced-Air	5F	6.5	5 11/16	2 13/16	C·P C·T·F	120 120	2500 3000	— —	120 120	3.3 2.5	300 375
4-250A/ 5D22	Beam Power Tube	Forced-Air	5F	14.5	6 3/8	3 9/16	AB_2 C·P C·T·F	— 110 110	4000 3200 4000	— — —	— 110 110	1.9 3.2 2.5	1040 510 1000
4-400A	Beam Power Tube	Forced-Air	5F	14.5	6 3/8	3 9/16	AB_2 C·P C·T·F	— 75 110	4000 3200 4000	— — —	— 75 75	3.5 3.5 5.8	1750 630 1100
4-1000A	Beam Power Tube	Forced-Air	7.5F	21	9 5/8	5 1/4	C·T·F	110	6000	—	110	15	3400
4E27/ 8001	Beam Power Tube	Natural	5F	7.5	6 3/16	2 11/16	C·P C·T·A	75 75	3000 4000	250 300	— —	0.1 0	200 235
4E27A/ 5-125B	Beam Power Tube	Natural	5F	7.5	6 3/16	2 3/4	C·P C·T·A	75 75	3200 4000	— —	— —	2 1.9	295 375
4X500A	Beam Power Tube	Forced-Air	5F	13.5	4 3/4	2 5/8	C·T·F	120	4000	—	110	5	835
6F4	Acorn Triode	Natural	6.3	0.225	1 3/8	1 5/32	C·T·A	—	150[d]	—	—	0.2	1.8
8D21	Tetrode	Water	3.2F	125	12 9/32	5 3/4	■C·G·T	300	6000	10000	216	300 to 500	5300
9C21	Triode	Water	19.5F	415	24 1/2	9 1/2	B C·P C·T·A	— 15 15	15000 12500 17000	90000 50000 150000	— — —	150 1570 1800	61000 38000 100000
9C22	Triode	Forced-Air	19.5F	415	25	8 1/2[f]	C·T·A	5	17000	100000	—	1450	65000
9C25	Triode	Forced-Air	6F	285	17 3/8	7 1/8[f]	B C·P C·T·A	— 30 30	11500 9000 11500	40000 26000 40000	— — —	1500 3000 3750	50000 18000 32500
207	Triode	Water	22F	52	20 1/4[g]	6 15/32[f]	C·T·A	1.6	15000	30000	—	235	15000
801A	Triode	Natural	7.5F	1.25	5 3/8	2 1/16	C·T·A	60	600	42	—	4	25
802	Pentode	Natural	6.3	0.9	5 3/4	2 1/16	•C·T·A	30	600	33	—	0.3	23
803	Pentode	Natural	10F	5	9 1/4	2 9/16	C·T·A	20	2000	350	—	2	210
804	Pentode	Natural	7.5F	3	7 11/16	2 1/16	•C·T·A	15	1500	150	—	2	110
805	Triode	Natural	10F	3.25	8 1/2	2 5/16	B C·P C·T·A	— 30 30	1500 1250 1500	315 220 315	— — —	6 16 8.5	300 140 215
807	Beam Power Tube	Natural	6.3	0.9	5 3/4	2 1/16	• AB_2 • C·P • C·T·F	— 60 60	750 600 750	90 60 75	— — 60	0.2 0.4 0.3	120 44 54
809	Triode	Natural	6.3F	2.5	6 9/16	2 7/16	• B • C·P • C·T·A	— 60 60	1000 750 1000	100 75 100	— — —	2.7 4.3 3.8	145 55 75

For footnotes, see page 29

RCA Vacuum Power Tubes for CW Applications

RCA Type	Description	Cooling	Filament (F) or Heater		Max. Dimensions Inches		Class of Service*	Max. Frequency for Full Input Mc	Max. Plate Ratings†		Typical Operating Conditions†		
			Volts	Amp.	Length	Diam.			Volts	DC Input Watts	Frequency Mc	Approx. Driving Power Watts	Approx. Power Output Watts
810	Triode	Natural	10F	4.5	8¾	2¼[f]	• B • C·P • C·T·A	— 30 30	2750 2000 2500	510 500 750	— — —	13 35 19	725 380 575
811A	Triode	Natural	6.3F	4	6 15/32	2 7/16	• B • C·P • C·T·A	— 30 30	1500 1250 1500	235 175 260	— — —	6 10 7.1	310 135 200
812A	Triode	Natural	6.3F	4	6 15/32	2 7/16	• B • C·P • C·T·A	— 30 30	1500 1250 1500	235 175 260	— — —	5 7.6 6.5	340 130 190
813	Beam Power Tube	Natural	10F	5	7½	2 9/16	• AB_1 • C·P • C·T·A	— 30 30	2500 2000 2250	450 400 500	— — —	0 4.3 4	490 300 375
814	Beam Power Tube	Natural	10F	3.25	7 11/16	2 1/16	• C·P • C·T·A	30 30	1250 1500	180 225	— —	2 1.5	130 160
815	Twin Beam Power Tube	Natural	6.3 / 12.6	1.6 / 0.8	4 9/16	1 3/16[f]	• C·P • C·T·A	125 125	400 500	60 75	— —	0.16 0.18	45 56
826	Triode	Natural	7.5F	4	3 11/16	2 3/8	• C·T·A	250	1000	130	—	5.8	90
826	Triode	Forced-Air	7.5F	4	3 11/16	2 3/8	• C·T·A	250	1250	175	—	7.7	120
827R	Beam Power Tube	Forced-Air	7.5F	25	6 3/8[c]	4 11/16	C·P C·T·F	110 110	3000 3500	1200 1500	— —	68 50	825 1050
828	Beam Power Tube	Natural	10F	3.25	7 11/16	2 1/16	• AB_1 • C·P • C·T·A	— 30 30	2000 1250 1500	270 200 270	— — —	0 2.7 2.2	385 150 200
829B	Twin Beam Power Tube	Natural	6.3 / 12.6	2.25 / 1.125	4 5/16	2 3/8	AB_1 • C·P • C·T·A	— 200 200	750 600 750	100 90 120	— — —	0 0.5 0.4	44 70 90
830B	Triode	Natural	10F	2	6 11/16	2 1/16	C·T·A	15	1000	150	—	7	90
832A	Twin Beam Power Tube	Natural	6.3 / 12.6	1.6 / 0.8	3 5/16	2 3/8	• C·P • C·T·A	200 200	600 750	36 50	— —	0.21 0.24	26 35
833A	Triode	Natural	10F	10	8 13/16	4 9/32	• B • C·P • C·T·A	— 30 30	3300 3000 3300	1300 1000 1500	— — —	30 26 25	1900 800 1150
833A	Triode	Forced-Air	10F	10	8 13/16	4 9/32	• B • C·P • C·T·A	— 20 20	4000 4000 4000	1800 1800 2000	— — —	38 42 35	2700 1500 1600
834	Triode	Natural	7.5F	3.1	6⅞	2 11/16	C·P C·T·A	100 100	1000 1250	100 125	— —	6.5 4.5	58 75
837	Pentode	Natural	12.6	0.7	5¾	2 1/16	C·P C·T·A	20 20	400 500	20 32	— —	0.3 0.4	11 22
838	Triode	Natural	10F	3.25	7⅞	2 5/16	C·T·A	30	1250	220	—	6	130
845	Triode	Natural	10F	3.25	7⅞	2 5/16	AB_1	—	1250	150	—	—	115
860	Tetrode	Natural	10F	3.25	8¾[g]	4¼[f g]	C·T·A	30	3000	300	—	7	165
880	Triode	Water	12.6F	320	11½	7	B C·P C·T·A	— 25 25	10500 10500 10500	40000 36000 60000	— — 1.5	540 1100 1500	46000 27000 40000
889A	Triode	Water	11F	125	10 11/16	3 5/8	B C·P C·T·A	— 50 50	8500 6000 8500	12000 6000 16000	— — —	150 140 400	15000 4000 10000
889RA	Triode	Forced-Air	11F	125	11⅞	5 15/32[f]	B C·P C·T·A	— 40 40	8500 6000 8500	12000 6000 16000	— — —	150 140 400	15000 4000 10000
891	Triode	Water	22F	60	20⅞	6 15/32[f]	B C·T·A	— 1.6	15000 12000	20000 18000	— —	245 375	22000 10000
891R	Triode	Forced-Air	22F	60	22	6 15/32[f]	B C·T·A	— 1.6	10000 10000	10500 15000	— —	50 375	10000 10000
892	Triode	Water	22F	60	20⅞	6 15/32[f]	B C·P C·T·A	— 1.6 1.6	15000 10000 15000	20000 10000 30000	— — —	160 460 565	22000 6000 14000
892R	Triode	Forced-Air	22F	60	22	6 15/32[f]	B C·P C·T·A	— 1.6 1.6	12500 10000 12500	12000 10000 18000	— — —	84 430 495	10500 5000 10000
955	Acorn Triode	Natural	6.3	0.15	1⅜	1 5/32	C·T·O	—	180[d]	—	60	—	0.5

For footnotes, see page 29

RCA Vacuum Power Tubes for CW Applications

RCA Type	Description	Cooling	Filament (F) or Heater		Max. Dimensions Inches		Class of Service*	Max. Frequency for Full Input Mc	Max. Plate Ratings†		Typical Operating Conditions†		
			Volts	Amp.	Length	Diam.			Volts	DC Input Watts	Frequency Mc	Approx. Driving Power Watts	Approx. Power Output Watts
1624	Beam Power Tube	Natural	2.5F	2	$5\frac{3}{4}$	$2\frac{1}{16}$	C·T·A	60	600	54	—	0.43	35
1625	Beam Power Tube	Natural	12.6	0.45	$5\frac{3}{4}$	$2\frac{1}{16}$	Same as 807 except for heater rating, base, and dimensions.						
2029	Beam Power Tube	Liquid	1.35F[h]	1000[h]	8.22	11.38	C·P C·T·F	1000 1000	5500 9000	25000 60000	400 400	200[a] 300[a]	10000[b] 25000[b]
4602	Shielded-Grid Beam Triode	Water	7.3 to 7.8F	1120 to 1160	38.4	10.06	Same as 6949 except for plate water connector assembly.						
4604	Quick-Heating Beam Power Tube	Natural	6.3F	0.65	$3\frac{13}{16}$	$1\frac{21}{32}$	•C·T·F	60	750	90	175	4.5	30
5556	Triode	Natural	4.5F	1.1	$4\frac{1}{2}$	$1\frac{5}{8}$	A_1 C·P C·T·F	— 6 6	350 350 350	— 14 14	— — —	— 0.3 0.25	0.6 4 6
5588	Triode	Forced-Air	6.3	2.5	3.4	1.76	C·T·A	1200	1000	250	1000	32	100
5618	Pentode	Natural	3F / 6	0.46 / 0.23	$2\frac{5}{8}$	$\frac{3}{4}$	•C·M·D •C·M·T •C·T·F	100 100 100	300 300 300	7.5 7.5 7.5	80 80 80	0.75 0.75 0.3	4.2 3.4 5.2
5671	Triode	Forced-Air	11F	285	25	8.5[f]	B C·P C·T·A	— 10 10	15000 12500 15000	90000 55000 100000	— 1.6 1.6	600 1960 2040	100000 40000 70000
5675	Pencil Triode	Natural	6.3	0.135	2.252	0.816	C·T·O	—	165	5	1700	—	0.475[b]
5686	Beam Power Tube	Natural	6.3	0.35	$2\frac{3}{16}$	0.875	C·T·A	—	275	11	125	0.15	5.25[b]
5713	Triode	Forced-Air	3.3	11.5	$4\frac{7}{8}$	$2\frac{1}{16}$	C·T·A	220	1500	450	220	65	325
5762/7C24	Triode	Forced-Air	12.6F	29	$7\frac{1}{8}$[g]	$4\frac{11}{16}$	B C·P C·T·F	— 30 30	6200 5000 6200	8700 5000 8700	— 30 30	195 720 1225	8800 4200 7000
5762A	Triode	Forced-Air	12.6F	29	$7\frac{1}{8}$[g]	$4\frac{11}{16}$	■B·T C·P C·T·F	216 30 30	4500 5000 6200	9000 5000 8700	216 30 30	983 720 1225	6350 4200 7000
5763	Beam Power Tube	Natural	6	0.75	$2\frac{5}{8}$	$\frac{7}{8}$	C·M·D C·M·T C·T·F	50 50 50	300 300 300	15 15 15	175 175 50	0.6 0.6 0.35	2.1[b] 1.3[b] 7[b]
5770	Triode	Water	11F	285	$24\frac{1}{2}$	$9\frac{1}{2}$	B C·P C·T·A	— 20 20	15000 12500 17000	90000 60000 150000	— — —	688 2160 11200	117000 45000 114000
5771	Triode	Water	7.5F	170	$11\frac{5}{16}$	7	B C·P C·T·A	— 25 25	12500 10000 12500	45000 40000 60000	— — 25	430 1010 1050	55000 29000 44000
5786	Triode	Forced-Air	11F	12.5	$9\frac{5}{8}$	2.895	B C·P C·T·F	— 160 160	4000 2500 3000	1500 1000 1500	— — —	30 75 36	1640 810 1000
5876	Pencil Triode	Natural	6.3	0.135	2.252	0.816	C·M·D C·T·O C·T·A	— — —	330 360 360	7.5 9 9	960 500 500	2[a] — 2[a]	2[b] 3[b] 5[b]
5876A	Pencil Triode	Natural	For data refer to Mil-E-1/1043 (USAF) Specification.										
5893	Pencil Triode	Natural	6	0.28	2.297	0.816	C·M·D C·T·O C·T·A	— — —	260 320 320	8.5 11 11	1000 500 500	3.2[a] — 2[a]	2.75[b] 5[b] 7.5[b]
6146	Beam Power Tube	Natural	6.3	1.25	$3\frac{13}{16}$	$1\frac{23}{32}$	•AB_2 •C·P •C·T·F	— 60 60	750 600 750	90 67.5 90	— — 60	0.4 0.4 0.2	131 52 70
6155/4-125A	Beam Power Tube	Forced-Air	5F	6.5	$5\frac{3}{32}$	$2\frac{7}{16}$	C·P C·T·F	120 120	2500 3000	415 625	— —	1.7 2	300 375
6156/4-250A	Beam Power Tube	Forced-Air	5F	14.1	$5\frac{29}{32}$	$3\frac{7}{16}$	AB_2 C·P C·T·F	— 75 75	4000 3200 4000	1000 825 1250	— — —	3.8 4.4 3.4	1240 510 1000
6159	Beam Power Tube	Natural	26.5	0.3	Same as 6146 except for heater rating.								
6161	Triode	Forced-Air	6.3	3.4	$3\frac{13}{32}$	1.76	■B·T C·M·D C·T·F	900 900 900	1600 1600 1600	560 400 400	900 900 900	75[a] 100[a] 80[a]	230[b] 140[b] 180[b]
6166	Beam Power Tube	Forced-Air	5F	174	11.63	6.38	▲B·T C·P C·T·F	216 60 60	6000 5000 6900	22000 10000 18000	216 60 60	800[a] 180[a] 75[a]	12000[b] 5500[b] 11600[b]
6166A/7007	Beam Power Tube	Forced-Air	5F	174	11.50	6.38	▲B·T C·P C·T·F	220 220 220	7500 5500 7500	24000 10000 20000	216 60 216	1500[a] 125[a] 750[a]	14000[b] 6000[b] 10000[b]
6181	Beam Power Tube	Forced-Air	120 Max.	1.6	$7\frac{1}{4}$	$5\frac{1}{32}$	♦B·T C·P C·T·F	900 900 900	2000 1600 2000	3500 1650 2500	900 400 900	200[a] 250[a] 150[a]	1200[b] 950[b] 600[b]

For footnotes, see page 29

RCA Vacuum Power Tubes for CW Applications

RCA Type	Description	Cooling	Filament (F) or Heater		Max. Dimensions Inches		Class of Service*	Max. Frequency for Full Input Mc	Max. Plate Ratings†		Typical Operating Conditions†		
			Volts	Amp.	Length	Diam.			Volts	DC Input Watts	Frequency Mc	Approx. Driving Power Watts	Approx. Power Output Watts
6263	Pencil Triode	Natural	6	0.28	2.63	1.01	C·P C·T·O C·T·A	500 500 500	275 330 330	9 13 13	500 500 500	2[a] — 2.2[a]	6.7[b] 5[b] 7[b]
6263A	Pencil Triode	Natural	6	0.28	2.63	1.01	C·P C·T·O C·T·A	500 500 500	275 330 330	9 13 13	500 1700 500	2[a] — 2.2[a]	6.7[b] 0.9[b] 7[b]
6264A	Pencil Triode	Natural	6	0.28	2.63	1.01	C·M·T C·T·O C·T·A	500 500 500	300 330 330	9.9 13.2 13.2	510 1700 500	2.75[a] — 2.4[a]	2.1[b] 1[b] 7.5[b]
6417	Beam Power Tube	Natural	12.6	0.375	Same as 5763 except for heater rating.								
6448	Beam Power Tube	Liquid	1.35F[h]	1000[h]	7.97	11.38	△B·T C·P C·T·F	1000 1000 1000	7000 4500 7000	49000 22500 45500	800 900 900	1000[a] 1000[a] 800[a]	12000[b] 4500[b] 11000[b]
6524	Twin Beam Power Tube	Natural	6.3	1.25	3 9/16	1 11/16	•C·M·T •C·P •C·T·F	100 100 100	400 500 600	45 55 85	462 462 462	4[a] 7[a] 7[a]	8.5[b] 12[b] 20[b]
6562/5794A	Integral-Cavity Pencil Triode	Natural	6	0.16	3.256[g]	0.865[f]	C·T·O	1692	120	4	1680	—	0.5[b]
6806	Beam Power Tube	Water	1.35F[h]	1000[h]	7.97	11.38	△B·T C·P C·T·F	1000 1000 1000	9000 5500 9000	70000 25000 60000	800 400 900	1000[a] 300[a] 750[a]	19000[b] 10000[b] 13500[b]
6816	Cermolox Tube	Forced-Air	6.3	2.1	1.955	1.265	AB_2 C·P C·T·F	— 1215 1215	1000 800 1000	180 120 180	— 400 1215	0.3 3[a] 5[a]	140 45[b] 40[b]
6850	Twin Beam Power Tube	Natural	12.6	0.625	Same as 6524 except for heater rating.								
6883	Beam Power Tube	Natural	12.6	0.625	3 13/16	1 21/32	Same as 6146 except for heater rating, base and dimensions.						
6884	Cermolox Tube	Forced-Air	26.5	0.52	Same as 6816 except for heater rating.								
6893	Beam Power Tube	Natural	12.6	0.4	Same as 2E26 except for heater rating.								
6897	Lighthouse Triode	Forced-Air	6.3	1.05	2 3/4	1 17/64	C·T·O	—	1000	—	2500	—	17
6939	Twin Pentode	Natural	6.3 / 12.6	0.6 / 0.3	2 5/8	0.875	•C·T·F	500	250	14	500	1.2[a]	6[b]
6949	Shielded-Grid Beam Triode	Water	7.3 to 7.8F	1120 to 1160	40	10.06	C·T·F	75	20000	1000000	0.425	2000	500000
7034/4X150A	Beam Power Tube	Forced-Air	6	2.6	2 15/32	1.640	AB_2 C·P C·T·F	— 150 150	2000 1600 2000	— — —	— 150 150	0.2 3 2.5	630 230 370
7035/4X150D	Beam Power Tube	Forced-Air	26.5	0.58	Same as 7034/4X150A except for heater rating.								
7054	Pentode	Natural	12 to 15	0.275 at 13.5 volts	2 5/8	0.875	C·M·D C·T·F	40 40	300 300	— —	40 40	0.013 0.015	2.5 4
7060	Triode-Pentode	Natural	12 to 15	0.28 at 13.5 volts	2 3/16	0.875	C·T·F	40	300	—	40	0.025	3.5
7094	Beam Power Tube	Forced-Air	6.3	2.85	5	2.56	•AB_1 •C·P •C·T·F	— 60 60	2000 1200 1500	400 335 500	— 60 60	0 5[a] 4[a]	560 240[b] 340[b]
7203/4CX250B	Beam Power Tube	Forced-Air	6	2.6	2.464	1.640	▫B·T C·P C·T·F	216 500 500	2000 1500 2000	— — —	216 175 500	1.2 0.7 18[a]	440 235 250[b]
7204/4CX250F	Beam Power Tube	Forced-Air	26.5	0.58	Same as 7203/4CX250B except for heater rating.								
7212	Ruggedized Beam Power Tube	Natural	6.3	1.25	3 13/16	1 21/32	•AB_2 •C·P •C·T·F	— 60 60	750 600 750	90 67.5 90	— 60 60	0.4 0.4 0.2	131 52 70
7213	Cermolox Tube	Forced-Air	5.5	17.3	3.34	3.75	C·P C·T·F	1215 1215	2000 2500	1700 2500	600 600	55[a] 75[a]	800[b] 1350[b]
7357	Ruggedized Beam Power Tube	Natural	26.5	0.3	Same as 7212 except for heater rating.								
7457	Ruggedized Cermolox Tube	Forced-Air	6.3	3.2	1.955	1.265	S·S·B C·P C·T·F	1215 1215 1215	1000 800 1000	180[i] 120 180	60 400 1215	0 3[a] 5[a]	40 45[b] 40[b]
7533	Integral-Cavity Pencil Triode	Natural	6	0.16	3.23[g]	0.865[f]	C·T·O	1700	130[j]	4	1680	—	0.575[b]

For footnotes, see page 29

RCA Vacuum Power Tubes for CW Applications

RCA Type	Description	Cooling	Filament (F) or Heater		Max. Dimensions Inches		Class of Service*	Max. Frequency for Full Input Mc	Max. Plate Ratings†		Typical Operating Conditions†		
			Volts	Amp.	Length	Diam.			Volts	DC Input Watts	Frequency Mc	Approx. Driving Power Watts	Approx. Power Output Watts
7551	Beam Power Tube	Natural	12 to 15	0.36 at 13.5 volts	2.58	0.875	• C·T·F	175	300	24	175	1.5[a]	10[b]
7552	Pencil Triode	Natural	6.3	0.225	1.62	0.557	RF	1500	250	—	1100	—	16db[k]
7553	Pencil Triode	Natural	6.3	0.225	1.62	0.557	RF	1500	250	—	1100	—	20db[l]
7554	Pencil Triode	Natural	6.3	0.225	1.62	0.557	C·M·D C·T·O C·T·A	4000 4000 4000	300[j] 300[j] 300[j]	— — —	1000 1000 1000	0.8[a] — 0.2[a]	0.9[b] 1.3[b] 1.4[b]
7558	Beam Power Tube	Natural	6.3	0.8	Same as 7551 except for heater rating.								
7580	Beam Power Tube	Forced-Air	6	2.6	2.464	1.640	A·M·T S·S·B	500 500	2000 2000	— —	500 500	3[a] 12[a]	90[b] 360[b]
7650	Ruggedized Cermolox Tube	Forced-Air	6.3	7.5	2.40	2.09	S·S·B C·P C·T·F	1215 1215 1215	2500 2000 2500	1250[i] 1000 1250	30 400 1215	4[a] 35[a] 80[a]	680[b] 600[b] 375[b]
7801	Cermolox Tube	Conduction	12.6	0.5	1.195	0.740	C·P C·T·F	— —	750 750	45 52.5	3000 3000 1200 400	1[a] 1[a] 1[a] 1[a]	1.7 3.2 15 27
7842	Ruggedized Cermolox Tube	Conduction	6.3	3.2	Same as 7844 except for heater rating.								
7843	Cermolox Tube	Conduction	26.5	0.52	Same as 7844 except for heater rating.								
7844	Cermolox Tube	Conduction	6.3	2.1	1.955	1.119	S·S·B C·P C·T·F	1215 1215 1215	1000 800 1000	180[i] 120 180	60 400 1215	0 3[a] 5[a]	40 45[b] 40[b]
7870	Cermolox Tube	Conduction	6.3	1	Same as 7801 except for heater rating.								
8000	Triode	Natural	10F	4.5	8¾	2¼[f]	• B • C·P • C·T·A	— 30 30	2750 2000 2500	510 500 750	— — —	7.9 20 18	725 380 575
8005	Triode	Natural	10F	3.25	6 11/16	2 7/16	• B • C·P • C·T·A	— 60 60	1500 1250 1500	250 240 300	— — —	5.5 9 7.5	330 170 220
8072	Beam Power Tube	Conduction	12 to 15	1.3 at 13.5 volts	2.26	1.44	S·S·B C·T·F	500 500	2200 2200	990[i] 660	30 470	0.3[a] 5[a]	80[b] 85[b]
8121	Beam Power Tube	Forced-Air	13.5	1.3	2.20	1.44	S·S·B C·T·F	500 500	2200 2200	990[i] 660	30 470	0.3[a] 5[a]	170[b] 235[b]
8122	Beam Power Tube	Forced-Air	13.5	1.3	2.26	1.64	S·S·B C·T·F	500 500	2200 2200	990[i] 660	30 470	0.3[a] 5[a]	380[b] 300[b]

FOOTNOTES:

* A_1 — Class A_1 AF Modulator Service.
AB_1 — Class AB_1 Push-Pull AF Modulator Service.
AB_2 — Class AB_2 Push-Pull AF Modulator Service.
A·M·T — Linear RF Power Amplifier — AM Telephone Service.
B — Class B Push-Pull AF Modulator Service.
B·T — Class B Television Service.
C·G·T — Class C Grid-Modulated Television Service.
C·M — Class C Frequency-Multiplier Service.
C·M·D — Class C Frequency-Doubler Service.
C·M·T — Class C Frequency-Tripler Service.
C·P — Class C Plate-Modulated Telephone Service.
C·T·A — Class C Telegraph Service; amplifier.
C·T·F — Class C Telegraph or FM Telephone Service.
C·T·O — Class C Telegraph Service; oscillator.
RF — Class A, RF Amplifier Service.
S·S·B — Linear RF Power Amplifier, Single-Sideband, Suppressed-Carrier Service.

In the Push-Pull Classes of Service (AB_1, AB_2, and B), the values shown under Maximum Plate Ratings are for one tube; and, except for twin-unit types, those under Typical Operating Conditions are for two tubes. In all other Classes of Service, the values shown are for one tube unless otherwise stated.

† Unless otherwise specified, all values shown are for Continuous Commercial Service.
• Intermittent Commercial and Amateur Service.
■ Typical operating data shown for this service are for synchronizing-level conditions per tube for a bandwidth of 6 Mc.
▲ Typical operating data shown for this service are for synchronizing-level conditions per tube for a bandwidth of 8.5 Mc.
◆ Typical operating data shown for this service are for synchronizing-level conditions per tube for a bandwidth of 8 Mc.
△ Typical operating data shown for this service are for synchronizing-level conditions per tube for a bandwidth of 7 Mc.
□ Typical operating data shown for this service are for synchronizing-level conditions per tube for a bandwidth of 5 Mc.
[a] Driver power output.
[b] Useful power output.
[c] Typical power output is for two tubes.
[d] Design-center values.
[e] Per unit.
[f] Maximum radius.
[g] Excluding flexible leads.
[h] Per section.
[i] Maximum-signal value.
[j] Plate-to-grid volts.
[k] Minimum power gain for 10 Mc bandwidth and 12 db maximum noise figure.
[l] Minimum power gain for 4 Mc bandwidth and 11.5 db maximum noise figure.

RCA Vacuum Power Tubes for RF-Pulse Applications

RCA Type	Description	Cooling	Filament (F) or Heater		Max. Dimensions Inches		Class of Service#	Max. Frequency for Full Input Mc	Max. Plate Ratings†				Typical Operating Conditions†			
			Volts	Amp.	Length	Diam.			Peak Plate Volts	Peak Plate Amp.	Max. "On" Time μsec.	Time Interval μsec.	Frequency Mc	Pulse Duration μsec.	Duty Factor	Approx. Useful Peak Power Output Kw
2C40A	Lighthouse Triode	Natural	6.3	0.75	2 9/16	1.312	P·P·O	3370	1400	2.0	10	5000	3000	1.0	0.001	0.3
2041	Beam Power Tube	Liquid	1.35F[h]	1000[h]	8.93	11.25	B·P·P	174 to 575	40000	15	220	11000	450	200	0.01	300
							B·P·P	174 to 575	30000	15	2500	33300	450	2000	0.06	180
2054	Triode	Water	3.1 to 4.5F	6600 to 7200	17.00	14.100	B·P·P	450	34000	300	2200	34000	440	2000	0.06	5000
							B·P·P	450	28000	250	10000	155000	440	10000	0.06	2500
4603	Shielded-Grid Beam Triode	Water	7.3 to 7.8F	1120 to 1160	40	10.06	B·P·P	100	40000	90	3000	30000	50	3000	0.09	1500
4605V1	Beam Power Tube	Liquid	0.95F	460 to 530	9.50	11.25	For maximum ratings and typical operating conditions refer to type 6952									
5893	Pencil Triode	Natural	6.0	0.280	2.297	0.816	C·P·P	—	1750	3	5	5000	3300	1.0	0.001	1.2
5946	Triode	Forced-Air	6.3	3.4	3 13/32	1.76	C·P·P	1300	7500	4.5	10	1000	1250	5	0.01	14
6950/ 2039	Shielded-Grid Beam Triode	Water	7.3 to 7.8F	1120 to 1160	37.24	20.50	P·P·A	200	40000	92	2500	40000	200	2000	0.05	1500
6952	Beam Power Tube	Liquid	0.95F	500	8.93	11.25	B·P·P	174 to 600	55000	80	20	4000	425	13	0.004	2000
7214	Cermolox Tube	Forced-Air	5.5	17.3	3.34	3.75	P·S·P	1215	10000	18	10	1000	1215	10	0.01	65
7649	Ruggedized Cermolox Tube	Forced-Air	6.3	3.2	1.955	1.265	P·S·P	1215	3000	3	10	1000	1215	10	0.01	4.5
7651	Ruggedized Cermolox Tube	Forced-Air	6.3	7.5	2.40	2.09	P·S·P	1215	8000	9	10	1000	1215	10	0.01	39
7835	Triode	Water	3.1 to 4.2F	6600	17	24	B·P·P	300	65000	325	25	2500	250	25	0.006	10000
								300	40000	300	2200	34000	250	2000	0.06	5000

#B·P·P — Class B Plate-Pulsed Amplifier Service.
C·P·P — Class C Plate-Pulsed Amplifier Service.
P·P·A — Plate-Pulsed Amplifier Service.
P·P·O — Plate-Pulsed Oscillator Service.
P·S·P — Plate-and-Screen-Pulsed Amplifier Service.

† Unless otherwise specified, all values shown are for Continuous Commercial Service.
[h] Per section.

RCA Hard-Tube Modulators

Type	Description	Cooling	Heater		Max. Dimensions Inches		Max. Plate Ratings†				Typical Operating Conditions†		
			Volts	Amp.	Length	Diam.	DC Plate Volts	Peak Plate Amp.§	Duty Factors§	Time Interval μsec.	Pulse Duration μsec.	Duty Factor	Approx. Peak Power Output Kw
3E29	Twin Beam Power Tube	Natural	6.3 12.6	2.25 1.125	$4\frac{5}{16}$	$2\frac{3}{8}$	5000	10 5 0.25	Up to 0.001 0.004 1	1200 1200 1200	1.2	0.001	40
6293	Beam Power Tube	Natural	6.3	1.25	$3\frac{13}{16}$	$1\frac{23}{32}$	3500	3 1 0.2	Up to 0.003 0.04 1	10000 10000 10000	100	0.01	3.4
7358	Ruggedized Beam Power Tube	Natural	6.3	1.25	$3\frac{13}{16}$	$1\frac{21}{32}$	3500	3 1 0.2	Up to 0.003 0.04 1	10000 10000 10000	100	0.01	3.4

† Unless otherwise specified, all values shown are for Continuous Commercial Service.
§ Points taken from Plate Current Versus Duty Factor rating chart.

RCA Vacuum Power Tubes for Special Applications

Type	Description	Cooling	Heater		Max. Dimensions Inches		Class of Service	Maximum Ratings
			Volts	Amp.	Length	Diam.		
3C33	Twin Triode	Natural	12.6	1.125	$3\frac{11}{16}$	$2\frac{3}{8}$	Voltage Regulator	Max. Values per Unit: Peak Plate Volts, ±2000; Peak Cathode ma, 500; Average Plate ma, 120; Plate Dissipation, 15 watts.
4600A	Cermolox Tube	Forced-Air	5.5	17.3	3.25	3.725	Voltage Regulator	Max. Values: DC Plate Volts, 3500; DC Plate Amperes, 1; Plate Dissipation, 1750 watts; Grid-Circuit Resistance, 30000 ohms.
6173	Pencil Diode	Natural	6.3	0.135	2.227	0.320	Pulse Detection	Max. Values: Peak Inverse Plate Volts, 1000; Peak Pulse Plate Volts, 150; Peak Pulse Plate Amperes, 1; Average Plate ma, 1.
7360	Beam Deflection Tube	Natural	6.3	0.35	$2\frac{5}{8}$	0.875	Balanced Modulator and/or Balanced Mixer	Max. Values per Unit: Plate Volts, 300; Deflecting Electrode Volts, ±100; Plate Dissipation, 1.5 watts. Typical Values: Plate Volts, 150; Grid-No. 2 Volts, 175; Peak-to-Peak RF Grid-No. 1 Volts, 10; Plate Milliamperes (each plate), 1.5; Deflecting Electrode Volts (approx.), 25. Push-Pull Peak-to-Peak Double-Sideband Output Volts (Balanced Modulator), 4. Push-Pull Peak-to-Peak Single-Sideband Output Volts (Balanced Mixer), 25.

To extend the system's concepts RCA provides a variety of electrical, mechanical, and cooling variants once the designer has selected the generic tube type determined by power and frequency requirements.

VARIANTS

ELECTRICAL VARIANTS For example, in most new power tubes, more than one heater configuration is available: 6.3-volt types having conventional heating time for general industrial use, quick-heating for general industrial use, quick-heating for "emergency" mobile use; 12.6-volt types for mobile use; or 26.5-volt types for aircraft use. Another example of an electrical variant is in plate dissipation: type RCA-8121 permits 150 watts; a similar type, RCA-8122, permits 400 watts. In many cases a different plate dissipation may be effected by cooling methods which are discussed under Thermal Design Features on page 35.

MECHANICAL VARIANTS In recognition of the problems of "packaging" space-age designs, RCA has achieved more compact and rugged tubes by improvements such as: ceramic structures, mesh filament, unitized electrode-and-terminal construction, external anode, and improved radiator design. These improvements provide added benefits in reducing the equipment requirements for cooling and shock-mounting.

Many new RCA generic tube types are available in both low-cost industrial and ruggedized configurations.

COOLING VARIANTS Prior to the development of conduction cooling techniques for power tubes, cooling was limited to natural-air, forced-air, or liquid, depending upon the power to be dissipated. The advent of conduction cooling offers new advantages and is useful in the same power ranges previously covered only by forced-air cooling.

In newer power tubes, RCA provides generic tube types in both forced-air and conduction-cooled configurations.

Whether your variant requirements are electrical, mechanical, or cooling, RCA has numerous generic tube types available which may be adapted to meet your new-equipment needs. Contact the Marketing Manager, Industrial Tube Products, RCA, Lancaster, Pa. for details.

RCA Type	Description	Filament (F) or Heater		Max. Dimensions Inches		Max. Plate or Anode Ratings		
		Volts	Amp.	Length	Diam.	Peak Inverse Volts	Peak Amperes	Average Amperes
VACUUM TYPES—Half-Wave Types (except as noted)								
2X2A	For equipment subject to severe shock and vibration.	2.5	1.75	$4^{17}/_{32}$	$1^{9}/_{16}$	12500[d]	0.06[d]	0.0075[dm]
5R4GY	Full-wave type. For low-power transmitters and industrial uses.	5F	2	$5^{5}/_{16}$	$2^{1}/_{16}$	2800[d]	0.65[dm]	0.175[dn]
5R4GYB	Like 5R4GY but smaller envelope.	5F	2	$4^{1}/_{4}$	$1^{9}/_{16}$	3100	0.715[m]	0.216[n]
579B	For high-voltage low-current uses.	2.5F	6	$7^{7}/_{16}$	$2^{1}/_{16}$	20000	0.27	0.025
836	For use in transmitting and industrial equipment.	2.5	5	$6^{9}/_{16}$	$2^{7}/_{16}$	5000	1	0.25
1616	For use in transmitting and industrial equipment.	2.5F	5	$6^{13}/_{16}$	$2^{1}/_{16}$	6000	0.8	0.13
5825	For rf-operated high-voltage low-current power supplies.	1.6F	1.25	$5^{27}/_{32}$	$2^{1}/_{16}$	60000	0.04	0.002
6173	For use where space is at a premium.	6.3	0.135	2.227	0.320	1000	1	0.001
8013A	For high-voltage low-current uses.	2.5F	5	$6^{1}/_{16}$	$2^{1}/_{16}$	40000[p]	0.15	0.02
8020	For high-voltage low-current uses.	5F	6	8	$2^{5}/_{16}$	40000	0.75	0.1

For footnotes, see page 34.

RCA Type	Filament (F) or Heater		Max. Dimensions Inches		Tube Voltage Drop	Max. Plate or Anode Ratings — For Supply Frequency of 60 cps‡					Operating Conditions Single-Phase Full-Wave‡ (With 2 Tubes Except Type 83)			
	Volts	Amp.	Length	Diam.		Temp. Range Condensed Mercury °C	Peak Inverse Volts	Peak Amperes	Average Amperes	Fault Amperes	Peak Inverse Volts	Max. AC Plate-to-Plate Supply Volts	Approx. DC Output Volts To Filter	Max. DC Output Amperes
MERCURY-VAPOR TYPES — Half-Wave Types (except as noted)														
83[q]	5F	3	$5^{3}/_{8}$	$2^{1}/_{16}$	15	20 to 60	1550[d]	1[dm]	0.225[d]	—	1550	1100	500	0.225[r]
575A	5F	10	$11^{1}/_{8}$	$3^{1}/_{8}$	10	20 to 50 20 to 60 *20 to 50* *20 to 60*	15000 10000 *15000* *10000*	6 7 *10* *10*	1.5 1.75 *2.5* *2.5*	100 100 *100* *100*	15000 10000 — —	10600 7000 — —	4800 3200 — —	3 3.5 — —
604/7014	2.5F	11.5	$7^{1}/_{2}$	$2^{1}/_{16}$	10	0 to 90	900	10	2.5	150	—	—	—	—
615/7018	2.5F	7	$6^{3}/_{8}$	$2^{1}/_{16}$	12	35 to 80	2000	10	2.5	250	—	—	—	—
635/7019	2.5F	18	$9^{1}/_{2}$	$2^{1}/_{16}$	9	0 to 100	1000	77	6.4	770	—	—	—	—
673	5F	10	$11^{7}/_{16}$	$3^{1}/_{8}$	10	For maximum ratings and operating conditions, refer to Type 575A.								
816	2.5F	2	$4^{11}/_{16}$	$1^{9}/_{16}$	15	20 to 60	7500	0.5	0.125	5	7500	5200	2400	0.25
857B	5F	30	$19^{7}/_{8}$[g]	$7^{1}/_{8}$	15	30 to 40 25 to 60	22000 10000	40 40	10 10	400 400	22000 10000	15400 7000	7000 3200	20 20
866A	2.5F	5	$6^{9}/_{16}$	$2^{7}/_{16}$	15	20 to 60 20 to 70 20 to 80	10000 5000 2500	1 1 2	0.25 0.25 0.5	20 20 20	10000 5000 2500	7000 3400 1600	3200 1600 800	0.5 0.5 1
869B	5F	19	$14^{7}/_{16}$	$5^{1}/_{8}$	15	30 to 40 30 to 50 30 to 60 *30 to 40* *30 to 50* *30 to 60*	20000 15000 10000 *20000* *15000* *10000*	10 10 10 *10* *20* *20*	2.5 2.5 2.5 *2.5* *5* *5*	100 100 100 *100* *100* *100*	20000 15000 10000 — — —	14000 10600 7000 — — —	6300 4700 3100 — — —	5 5 5 — — —
872A	5F	7.5	$8^{1}/_{2}$	$2^{5}/_{16}$	10	20 to 60 20 to 70	10000 5000	5 5	1.25 1.25	50 50	10000 5000	7000 3400	3200 1600	2.5 2.5

For footnotes, see page 34.

Type	Filament (F) or Heater		Max. Dimensions Inches		Tube Voltage Drop	Max. Plate or Anode Ratings — For Supply Frequency of 60 cps‡					Operating Conditions Single-Phase Full-Wave✢ (With 2 Tubes Except Type 83)			
	Volts	Amp.	Length	Diam.		Temp. Range Condensed Mercury °C	Peak Inverse Volts	Peak Amperes	Average Amperes	Fault Amperes	Peak Inverse Volts	Max. AC Plate-to-Plate Supply Volts	Approx. DC Output Volts To Filter	Max. DC Output Amperes
MERCURY-VAPOR TYPES — Half-Wave Types — Cont'd														
5558	5	4.5	7	3	15	30 to 60	5000	15	2.5	200	5000	3400	1600	5
						30 to 80	2000	15	2.5	200	2000	1400	600	5
5561	5	10	$11\frac{1}{4}$	$3\frac{13}{16}$	15	40 to 80	3000	40	6.4	400	3000	2000	950	12.8
	Welder-Control Ratings					25 to 50	10000	16	4	160	—	—	—	—
6894	5F	10	$10\frac{17}{32}$	$2\frac{5}{8}$	10	20 to 50	20000	8.3	1.8	100	20000	14000	6300	3.6
						20 to 55	15000	8.3	1.8	100	15000	10600	4700	3.6
						20 to 60	10000	8.3	1.8	100	10000	7000	3200	3.6
						20 to 50	*20000*	*11.5*	*2.5*	*100*	—	—	—	—
						20 to 55	*15000*	*11.5*	*2.5*	*100*	—	—	—	—
						20 to 60	*10000*	*11.5*	*2.5*	*100*	—	—	—	—
6895	5F	10	$10\frac{13}{32}$	$2\frac{5}{8}$	For maximum ratings and operating conditions, refer to Type 6894.									
8008	5F	7.5	$8\frac{3}{4}$	$2\frac{5}{16}$	For maximum ratings and operating conditions, refer to Type 872A.									
GAS TYPES — Half-Wave Types														
3B25	2.5F	5	$6\frac{5}{16}$	$2\frac{1}{16}$	10	−75 to +90[s]	4500	2	0.5	20	4500	3000	1400	1
3B28	2.5F	5	$6\frac{5}{32}$	$2\frac{1}{16}$	10	−75 to +90[s]	10000	1	0.25	20	10000	7000	3200	0.5
							5000	2	0.5	20	5000	3400	1600	1

‡ Values shown in italics are for quadrature operation; other values are for in-phase operation.

✢ Conditions assumed; (1) sine-wave supply (2) zero voltage drop (3) pure resistive load (4) no filter.

[d] Design-center values.

[g] Excluding flexible leads.

[m] Per plate.

[n] With choke input to filter.

[p] For oil-immersed operation, a maximum rating of 55,000 volts applies.

[q] Full-wave type.

[r] Per tube.

[s] Ambient temperature.

THERMAL DESIGN FEATURES

Proper thermal design is the secret ingredient for long life and low operating costs in a reliable power tube. By careful selection of materials, proper placement of elements, and advanced techniques in sealing, RCA establishes the highest possible tube temperature rating. This high temperature rating permits a minimum of external cooling to maintain proper operation. Increased reliability and even longer life, however, can be realized by reducing tube temperature to a value as low as practicable.

At a given power level it is often possible to choose between RCA types on basis of type of cooling employed. In some applications a larger tube requiring only natural-air cooling may be satisfactory while a smaller compact tube for use with forced-air or conduction cooling may be indicated where space and weight are critical considerations.

An outstanding RCA development in cooling methods is the high-efficiency integral radiator—like the one shown here. This radiator was a logical development, but it required RCA "know-how" to master the complex manufacturing problems involved.

RCA is attentive to any special need to adapt the power tube to the cooling system . . . special tube connectors to solve "plumbing" problems—special tube finishes to withstand special coolants, such as oil or FC75.

RCA Type	Max. Dimensions Inches		Class of Service	RMS Supply Volts	Maximum Anode Ratings						Maximum Ignitor Ratings					Minimum Ignition Requirements		
							Peak Amperes		Average Amperes		Peak Volts		Amperes					
	Rigid Length	Diam.			Kva Demand	Peak Inverse or Forward Volts	Welder Service	Rectifier Service	Welder Service	Rectifier Service	Neg.	Pos.	Peak	Ave.[t]	RMS	Peak Volts	Peak Amperes	Starting Time μsec.[14]
1051A	13	2 7/8[f]	Resistance Welding Control[v]	250	200	—	1130	—	56	—	5	Equal to anode volts	100	1	10	200	30	100
				600	200	—	466	—	56	—								
				250	600	—	3400	—	30.2	—								
				600	600	—	1410	—	30.2	—								
			Intermittent Rectifier Service	—	—	500	—	700	—	40								
				—	—	1200	—	600	—	22.5								
				—	—	1500	—	480	—	18								
1052A	15 1/2	3 5/8[f]	Resistance Welding Control[v]	250	400	—	2260	—	140	—	5	Equal to anode volts	100	1	10	200	30	100
				600	400	—	945	—	140	—								
				250	1200	—	6800	—	75.6	—								
				600	1200	—	2830	—	75.6	—								
			Intermittent Rectifier Service	—	—	500	—	1600	—	100								
5550	10	2 3/4	Resistance Welding Control[v]	250	150	—	840	—	4.86	—	5	900	100	1	10	200	30	100
				600	150	—	350	—	4.86	—								
				250	300	—	1680	—	12.1	—								
				600	300	—	700	—	12.1	—								
5551A	13 1/2	2 7/8[f]	Resistance Welding Control[v]	250	200	—	1130	—	56	—	5	Equal to anode volts	100	1	10	200	30	100
				600	200	—	466	—	56	—								
				250	600	—	3400	—	30.2	—								
				600	600	—	1410	—	30.2	—								
			Intermittent Rectifier and Frequency-Changer Welding Service	—	—	500	—	700	—	40								
				—	—	1200	—	600	—	22.5								
				—	—	1500	—	480	—	18								
5552A	15 1/4	3 5/8[f]	Resistance Welding Control[v]	250	400	—	2260	—	140	—	5	Equal to anode volts	100	1	10	200	30	100
				600	400	—	945	—	140	—								
				250	1200	—	6800	—	75.6	—								
				600	1200	—	2830	—	75.6	—								
			Intermittent Rectifier Service	—	—	500	—	1600	—	100								
5553B	20	4 11/16[f]	Resistance Welding Control[v]	250	800	—	4530	—	355	—	5	Equal to anode volts	100	1	10	200	30	100
				600	800	—	1890	—	355	—								
				250	2400	—	13600	—	192	—								
				600	2400	—	5660	—	192	—								
			Frequency-Changer Welding Service	—	—	600	—	4000	—	190								
				—	—	1200	—	3000	—	140								
				—	—	1500	—	2400	—	112								
5555	18 1/2	4 9/16[f]	Rectifier	—	—	900	—	1800	—	200	5	2400	100	2[w]	15	150	40	100
				—	—	2100	—	1200	—	150	*Auxiliary anode:* Peak Forward Volts = 150 max.; Peak Inverse Volts, main anode not conducting = 150 max.; main anode conducting = 25 max.; Max. Amperes over any interval of 10 sec. max. = 20 peak, 5 ave, 10 rms.							
			Resistance Welding Control[v]	2400	1105	—	3000	—	207	—								
				2400	2400	—	3000	—	135	—								

[f] Maximum radius.

[t] Over any interval of 5 seconds max.

[u] At specified peak-voltage or peak-current value.

[v] For two tubes in inverse-parallel circuit.

[w] Over any interval of 10 seconds max.

RCA TYPE	Description	Filament (F) or Heater Volts	Filament (F) or Heater Amp.	Max. Dimensions Inches Length	Max. Dimensions Inches Diam.	Approx. Tube Drop Volts	Maximum Ratings: Temperature Range, Condensed Mercury °C Except as Noted	Peak Forward Anode Volts	Peak Inverse Anode Volts	Peak Anode Amperes	Average Anode Amperes	Fault Amperes
TRIODES (Mercury-Vapor Types)—For Control Service (except as noted)												
3C23	Gas and mercury-vapor tube of the negative-control, filament type. Small 4-pin bayonet base, medium cap.	2.5F	7	6 1/8	2 1/16	15	−40 to +80[x] −40 to +100[x]	1250 200	1250 200	6 6	1.5 1.5	120 120
627	Negative-control, filament type. Super-jumbo 4-pin base, medium cap.	2.5F	6	7	2 1/16	12	25 to 70	1250	2500	2.5	0.64	25
676	Negative-control, heater-cathode type. Super-jumbo 4-pin base, medium cap.	5	10	11 3/4	3 13/16	12	40 to 80	2500	2500	40	6.4	200
		Welder-Control Ratings					40 to 90	750	750	77	2.5	200
677	Negative-control, heater-cathode type. Super-jumbo 4-pin base, medium cap.	5	10	11 3/4	3 13/16	12	30 to 50	10000	10000	16	4	16
710/6011	Gas and mercury-vapor tube of the negative-control, filament type. Small 4-pin bayonet base, medium cap.	2.5F	9	6 1/4	1 5/8	15	−40 to +80	1500	1500	30	2.5	250
714/7021	Gas and mercury-vapor tube of the negative-control, filament type. Small 4-pin bayonet base, medium cap.	2.5F	5	6 1/8	2 1/16	15	−40 to +80	1250	1250	3	1.0	50
716/6855	Gas and mercury-vapor tube of the negative-control, filament type. Small 4-pin bayonet base.	2.5F	6.3	4 5/16	1 9/16	8	−40 to +80	1250	1250	8.0	1.0	80
760/6858	Gas and mercury-vapor tube of the negative-control, filament type. Super-jumbo 4-pin bayonet base, medium cap.	2.5F	21	9 1/2	2 9/16	12	−40 to +80	1500	1500	77	6.4	770
5557	Negative-control, filament type. Small 4-pin bayonet base, medium cap.	2.5F	5	6 1/8	2 1/16	16	40 to 60 40 to 80 40 to 90	5000 2500 1250	10000 5000 1250	1 2 3	0.25 0.5 1	40 40 40
5559	Negative-control, heater-cathode type. Small 4-pin bayonet base, medium cap.	5	4.5	7 1/4	3	16	40 to 80	1000	1000	15	2.5	200
5563A	Negative-control, filament type. Values in italics are for quadrature operation. Jumbo 4-pin, bayonet base, medium cap.	5F	10	10 17/32	2 5/8	15	25 to 50 25 to 55 *25 to 50* *25 to 55*	20000 15000 *20000* *15000*	20000 15000 *20000* *15000*	6.4 10 *11.5* *11.5*	1.6 1.8 *2.5* *2.5*	70 70 *70* *70*
TRIODES (Gas Types)—For Control Service (except as noted)												
629	Not recommended for new equipment design.	2.5	2.6	4 1/4	1 9/16	15	−40 to +70[x]	350	350	0.2	0.04	2
884	Negative-control, heater-cathode type. Small 5-pin base.	6.3	0.6	4 1/8	1 9/16	16	−75 to +90[x]	350	—	0.3	0.075	—
				Max. Ratings for Relaxation Oscillator Service			Peak Anode Volts, 300 Peak Anode Amp., 0.3					
885	Not recommended for new equipment design.	2.5	1.5	4 3/16	1 9/16	16	For ratings, refer to Type 884.					
6130/3C45	Positive-control, heater-cathode, hydrogen type. Full ratings to 50,000 feet. Pulse modulator. Small 4-pin base, small cap.	6.3	2.3	5 3/16	1 9/16	150	−50 to +90[x]	3000	3000	35	0.045	—
							Min. DC Anode-Supply Volts, 800 Max. Pulse Duration, 6 μsec.					
C1K/6014	Negative-control, filament, xenon type. Small 4-pin, bayonet base.	2.5F	6.3	4 1/4	1 9/16	8	−55 to +75[x]	1000	1250	8	1	77
C3J/5632	Negative-control, filament, xenon type. Small 4-pin, bayonet base, medium cap.	2.5F	9	6	1 9/16	10	−55 to +75[x]	900	1250	30	2.5	300
C3JA/5684	Negative-control, filament, xenon type. Small 4-pin, bayonet base, medium cap.	2.5F	9	6	1 9/16	10	−55 to +75[x]	1000	1250	30	2.5	300

[x] Ambient temperatures.

Type	Description	Filament (F) or Heater Volts	Filament (F) or Heater Amp.	Max. Dimensions Inches Length	Max. Dimensions Inches Diam.	Approx. Tube Drop Volts	Maximum Ratings: Temperature Range Condensed Mercury °C Except as Noted	Peak Forward Anode Volts	Peak Inverse Anode Volts	Peak Anode Amperes	Average Anode Amperes	Fault Amperes
TRIODES (Gas Types)—For Control Service (except as noted)—Cont'd												
C3JL	Negative-control, filament, xenon type. Special lug base, medium cap.	2.5F	9	6¾	2 3/16	10	−55 to +75[x]	900	1250	30	2.5	300
C6J/5C21	Negative-control, filament, xenon type. Super-jumbo 4-pin base, medium cap.	2.5F	21	9½	2 1/32	9	−55 to +75[x]	750	1250	77	6.4	770
C6JA/5685	Negative-control, filament, xenon type. Super-jumbo 4-pin base, medium cap.	2.5F	21	9½	2 1/32	9	−55 to +75[x]	1000	1250	77	6.4	770
C16J/5665	Negative-control, filament, xenon type. Base bracket and flexible leads.	2.5F	31	10½[g]	2 11/16	11	−55 to +75[x]	1000	1250	160	16	1000
								1000	1250	100	18	1000
TETRODES (Mercury-Vapor Types)—For Control Service (except as noted)												
105	Negative-control, heater-cathode type. Super-jumbo 4-pin, bayonet base, two large caps.	5	10	11¼	2½[f]	16	40 to 80	2500	2500	40	6.4	400
		Max. Ratings for Intermittent Service					25 to 50	10000	10000	16	4	160
172	Negative-control, heater-cathode type. Special terminal connections	5	10	10 27/32	2 5/8[f]	16	40 to 80	2000	2000	40	6.4	400
		5.5	11	Welder-Control Ratings			30 to 95	750	750	77	2.5	400
632B	Negative-control, heater-cathode type. Ignitor firing applications. Small 4-pin bayonet base, two medium caps.	5	5	8 5/16	1¾[f]	12	40 to 80	1500	1500	30	2.5	150
672A	Negative-control, heater-cathode type. Ignitor firing applications. Super-jumbo 4-pin bayonet base, medium cap.	5	5	8⅛	2 5/16	12	40 to 80	2500	2500	40	3.2	150
5560	Negative-control, heater-cathode type. Ignitor firing applications. Small 4-pin bayonet base, two medium caps.	5	4.5	7 15/16	2¼[f]	16	40 to 80	1000	1000	15	2.5	200
TETRODES (Gas Types)—For High-Sensitivity Control Service												
2D21	Negative-control, heater-cathode type. Miniature 7-pin base.	6.3	0.6	2⅛	¾	8	−75 to +90[x]	650	1300	0.5	0.1	10
		Typical Operating Conditions for Relay Service: Anode Volts (rms) = 400; Grid-No. 2 Volts = 0; Grid-No. 1 Volts = −6; Grid-No. 1 Circuit Resistance = 1 megohm; Anode Circuit Resistance = 2000 ohms.										
2D21W	Similar to 2D21 but intended for military and critical industrial applications.	Refer to MIL-E-1/756B										
3D22A	Negative-control, heater-cathode type. Giant 7-pin, bayonet base.	6.3	2.6	4 5/8	2 3/8	10	−75 to +90[x]	650	1500	8	0.8	30
		Grid-No. 1 Circuit Resistance, 2 megohms max.										
502A	Negative-control, heater-cathode type. Octal, 8-pin base.	6.3	0.6	2 5/8	1 5/16	8	−55 to +90[x]	650	1300	1	0.1	10
2050	Negative-control, heater-cathode type. Octal, 8-pin base.	6.3	0.6	4⅛	1 9/16	8	−75 to +90[x]	650	1300	1	0.1	10
		Grid-No. 1 Circuit Resistance, 10 megohms max.										
2050A	Same as 2050 but smaller envelope.	6.3	0.6	3 1/16	1 9/32	8	Same as 2050 except T9 bulb.					
5696	Negative-control, heater-cathode type. Low heater-current drain and short de-ionization time. Miniature 7-pin base.	6.3	0.15	1¾	¾	10	−55 to +90[x]	500	500	0.1	0.025	2
		Typical Operating Conditions for Relay Service: Anode Volts (rms) = 117 Grid-No. 1 Peak Signal Volts = 5; Grid-No. 1 Bias Volts (rms) = 5; Grid-No. 1 Circuit Resistance = 0.1 megohm; Anode circuit resistance = 5000 ohms.										
5727	"Premium", negative-control heater-cathode type designed to withstand shock and vibration. Miniature 7-pin base.	6.3	0.6	2⅛	¾	8	−75 to +150[x]	650	1300	0.5	0.1	10
		Max. Ratings for Pulse-Modulator Service						500	100	10	0.01	100
5727/2D21W	Similar to 5727 but intended for military and critical industrial applications.	Refer to MIL-E-1/83B.										
6012	Negative-control, heater-cathode type. Octal, 6-pin base.	6.3	2.6	3⅞	1 23/32	10	−75 to +90[x]	650	1300	5	0.5	20

[g] Excluding flexible leads. [f] Maximum radius. [x] Ambient temperatures.

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FEderal 7-8500

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EMerson 1-6462

Technical Information is available from the above office locations, your RCA Tube Distributor, or by writing to:

RCA
Commercial Engineering
Harrison, New Jersey

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TECHNICAL PUBLICATIONS

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• **RCA TRANSMITTING TUBES**—TT-4 (8⅜" x 5⅜")—256 pages. Contains basic information on generic tube types, on tube parts and materials, and on tube installation and application. Includes technical data and curves for power tubes having plate-input ratings up to 4 kilowatts, and data for associated rectifier tubes. Contains sections on transmitter-design considerations, rectifier circuits and filters, and circuit diagrams for transmitting and industrial applications. Features lie-flat binding. Price $1.00.*

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from your RCA Tube Distributor

or

From RCA, Commercial Engineering, Electron Tube Division, Harrison, New Jersey

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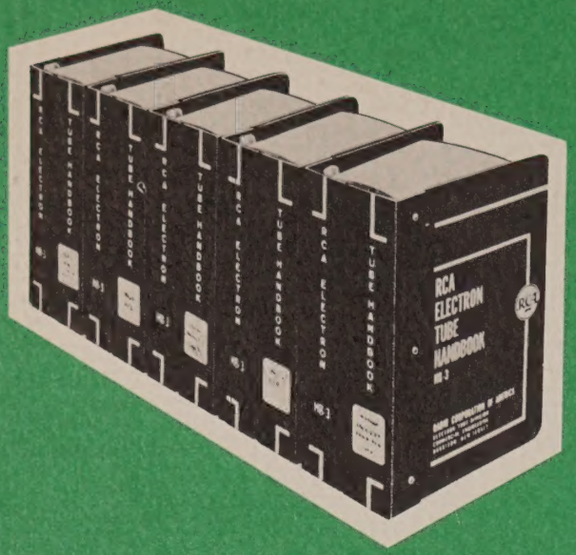

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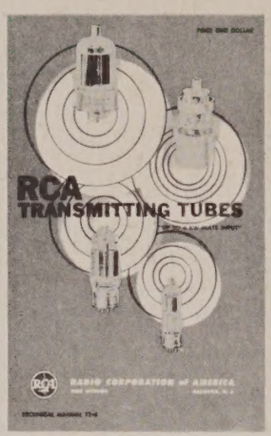

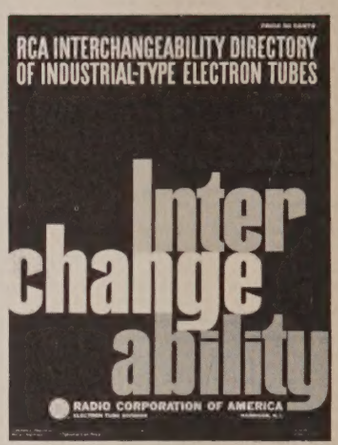
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